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The Schorstein Lecture

ON

ABSCESS OF THE BRAIN IN ASSOCIATION WITH PULMONARY DISEASE.

[AFTER detailing at some length the cases and literature to which reference is made in the appended bibliography, Dr. Schorstein came to his personal record of cases.]

RECORD OF CASES.

The cases I record are all the cases of cerebral abscess in association with pulmonary disease which have occurred at the Brompton Hospital for Diseases of the Chest during the last 22 years (1882–1904) and at the London Hospital during the last ten years (1894–1904). I must express my best thanks to my colleagues at both hospitals for allowing me to make use of their notes, both in the wards and post-mortem room.

There are in all 19 cases: two from the London Hospital and 17 from the Brompton Hospital. It is interesting that in the enormous number of post-mortem examinations at the London Hospital, considerably over 10,000 in the last ten years, there were only two cases of cerebral abscess in association with lung disease (apart from pyæmia), one following on bronchiectasis and one on empyema.

In analysing the Brompton Hospital records I examined into the history of every case where cerebral abscess was found at the post-mortem examination. There were 3700 such examinations in the last 22 years, and among them 21 cases of cerebral abscess. These cases were as follows: (*a*) bronchiectasis, 13; (*b*) pyæmia secondary to bronchiectasis, 1; (*c*) empyema, 2; (*d*) abscess of lung, 1; (*e*) emphysema and bronchitis, 1; (*f*) congenital morbus cordis, 2; and (*g*) chronic interstitial nephritis and sloughing ulcer of leg, 1. Of these I shall omit (*b*), where the cerebral abscess was extremely small with no nervous signs and part of a general pyæmia, and (*f*) and (*g*) which have nothing to do with pulmonary disease. With regard to (*f*), congenital morbus cordis, it is not clear that this really is so, and the curious, but very frequent, association of cerebral abscess with congenital morbus cordis may possibly be due to the secondary changes induced in the lungs by that condition.

The London Hospital cases are two in number, one of bronchiectasis and one of empyema.

19 Cases of Cerebral Abscesses in Association with Pulmonary Disease.

Bronchiectasis	14 cases
Empyema	3 ,,
Abscess of lung	1 ,,
Emphysema and bronchitis	1 ,,
	19 ,,

THE DISEASES OF THE LUNGS ASSOCIATED WITH CEREBRAL ABSCESS.

What are the diseases of the lungs in which abscess of the brain occurs? In order to get as wide a basis as possible to determine this point I have collated, from the original sources, as many as possible of the records of the conjunction of the two conditions in order to avoid the repetition of the same cases. The eight cases of Naether are the largest individual collection; Gull and Sutton's seven cases come next; other authorities give three or less. I have put together 50 such in addition to my own 19, making 69 in all. On analysis these are found to be distributed as follows: bronchiectasis, 38 (55 per cent.); empyema, 15 (22 per cent.); gangrene of lung, 6 (9 per cent.); tubercle, 3 (4·5 per cent.); acute pneumonia, 3; abscess of lung, 2; fœtid bronchitis and tubercle, 1; emphysema and bronchitis, 1; total 69. From these numbers it is clear that the chief associations between lung disease and cerebral abscess occur in bronchiectasis and in empyema, which together form more than three-fourths of all the cases. In my own records there is no true case of gangrene of the lung. My impression is that several of the cases recorded as gangrene of the lung properly belong to bronchiectasis, which would further increase the preponderance of that disease.

1. *Bronchiectasis* (Cases 1–14).—This has been recognised as the main antecedent lung condition since the association of cerebral abscess with lung disease was seen to be more than a fortuitous occurrence. Dr. Abercrombie's case, the second on record, was pure bronchiectasis; Dr. Richard Powell's (the first) empyema and bronchiectasis; which of the two was the primary factor it is impossible to tell from the description, but the fact that the patient had marked hæmoptysis and that the tubes were found dilated suggests bronchiectasis as the primary cause.

At the Brompton Hospital between 1882 and 1904 out of 3700 post-mortem examinations there were 63 such examinations on patients who had died from bronchiectasis. The causes of death were:—

Causes of Death in Bronchiectasis.

Bronchopneumonia	17	Pyæmia	3
Abscess of brain	13	Bronchitis	3
Lardaceous disease	6	Acute tuberculosis	2
Cardiac failure	5	Pneumothorax	1
Hæmoptysis	4	Pericarditis	1
Chronic tuberculosis	4	Meningitis	1
Gangrene of lung	3		63

These figures demonstrate that abscess of the brain is second only to bronchopneumonia as the last cause of death in bronchiectasis. It occurs in about 20 per cent. of the cases, a frequency much greater than is generally recognised. This is, I think, due to the fact that in general hospital practice, owing especially to the difficulty of keeping bronchiectasis patients long in a general ward, they are seldom observed over a sufficient length of time. Thus at the London Hospital there is only one such case in ten years, and as will be seen from the history this patient was admitted within a few days of death, with a history of accident, though no injury of scalp or skull was found at the necropsy, but only a typical bronchiectatic lung.

Bronchiectasis is the most frequent pulmonary antecedent of cerebral abscess, and cerebral abscess is the second most common cause of death in bronchiectasis.

2. *Empyema* (Cases 17–19).—In this country empyema is often looked upon as being the main pulmonary cause, leading to cerebral abscess. "Pneumonia, imperfectly resolved and breaking down; suppurating cavities in the lungs left by such pneumonia, and the result of bronchial dilatation; simple fœtid bronchitis; and *especially empyema*, are the chief causal conditions."[2] This represents the usual view. But empyema is far second to bronchiectasis in the causation of cerebral abscess, and the former leads to two cases only where the latter leads to five.

Cerebral abscess has occurred with empyema both in cases which have been operated on and in cases which have been untouched. Alike where the pus in pleura was undiscovered (Richard Powell) or simply tapped (Samuel West), or resection of rib performed (references *passim*) cerebral abscess has followed. Dr. Hadden, in a very interesting record of three such cases which occurred at St. Thomas's Hospital,[3] discusses this point and shows that section of the bone in resection of the rib can have nothing to do with the matter, though for some time this was believed to be so, and an attempt made to trace a causal relation. In the great majority of instances, cerebral abscess develops long after, sometimes many months after, the resection. It generally occurs in cases where the opening has never properly closed, and a more or less continuous, or intermittent purulent discharge has been kept up, but occasionally where the resection opening has already properly closed, as in a patient recorded by Dr. Pye-Smith.[4]

Attention may here be drawn to an interesting clinical point in connexion with the treatment of an empyema, after resection of the rib. It is now generally recognised that it is not advisable, except in cases where the pleural contents are very foul, to irrigate the cavity. There are several reasons

[1] We announced in THE LANCET, shortly after the premature death of Dr. G. I. Schorstein, that his friends proposed to found in his memory a course of lectures to be called the Schorstein Lectures, and to be delivered at the London Hospital Medical College upon clinical medicine of an advanced character. The scheme has been realised, and we now publish the first Schorstein Lecture, consisting of a Thesis for the Degree of Doctor of Medicine of the University of Oxford as advanced by Dr. Schorstein himself. The thesis was prefaced by an elaborate historical *résumé*.

[2] Gowers: Diseases of Brain, 1888, p. 443.

[3] St. Thomas's Hospital Reports, 1887.

[4] Pathological Society's Transactions, 1877.

for this, which need not be here discussed; but the main reason is the possibility that by such irrigation cerebral abscess may be fostered. Dr. Cayley[5] described the occurrence of epileptiform attacks after irrigation of the pleura, followed in some cases by sudden death. In no such case has any embolus been discovered in a cerebral artery at the post-mortem examination, though it seems almost certain that small embolisms have been the cause of the seizure. In a case reported by Professor D. W. Finlay,[6] the first epileptiform seizure (in a patient who had had resection of rib performed eight days previously, and who seemed to be doing well) occurred three hours after irrigation of the pleural cavity. The signs of cerebral abscess developed normally, and he died 14 days later. Three hours interval is rather long if there is direct causal connexion between the irrigation and the embolism, owing to dislodgment of thrombus from a pulmonary vein, and it may have been only a coincidence. However, though not proved, the possibility of dislodgment of thrombus by irrigation is so obvious, and the occurrence of epileptiform seizure immediately after irrigation, occasionally followed by death, so certain, that it militates much against the advisability of such irrigation. The point is well discussed by Escherich.[7]

Among cases of empyema, cerebral abscess does not appear to be a very frequent cause of death, and it does not hold at all the same relationship as a cause of death in empyema to that it holds in bronchiectasis.

3. *Gangrene of the lung.*—In my own 19 cases there is not a single instance of gangrene of lung associated with cerebral abscess. Of recorded cases there are six, forming about 9 per cent. of the total. In two of these certainly, well described by Richard Benjamin,[8] bronchiectasis was undoubtedly, from the details of the post-mortem examinations, the main underlying factor. This is true likewise in one of Naether's cases[9] and in Huguenin's.[10] The other two seem to be simply gangrene.

The word gangrene appears to be applied more freely to slight suppurating broncho-pneumonic conditions on the continent than with us. Naether says in his account of 11 years' work at the Leipsic Klinik (1872–1883) that he found eight cases of cerebral abscess among 49 cases of gangrene of the lung, 37 cases of fœtid bronchitis, and 12 cases of bronchiectasis. In the same paper he quotes Dr. Hlava's statistics, from the Prag Klinik (I have not been able to verify this as the account is in Bohemian), that in 90 cases of gangrene of the lung one case of abscess of the brain had occurred. Nothing at all corresponding to this frequency of occurrence of gangrene is to be found in our records. Four of the six cases put down as gangrene appear undoubtedly to have been bronchiectasis, and should be added to the number of bronchiectasis cases in my analysis. But I thought it better to leave them as recorded, and would only point out that in our sense of the word gangrene of the lung is but a rare cause of cerebral abscess.

4. *Tuberculosis of the lung.*—It is interesting, and contrary to expectation, that cerebral abscess is most rare in cases of tuberculosis of the lung. In the 3700 post-mortem examinations of the Brompton Hospital (1882–1904) there is not a single such case. There is not one in 10 years (1894–1904) at the London Hospital. Gowers[11] says: "It (cerebral abscess) never results from true tubercular cavities." The association is an unusual one, but it does occur. Senator[12] describes fully a case of tubercle with bronchiectasis, in which death was due to abscess of the brain. This case, as being chiefly bronchiectatic, I have included in my list of bronchiectasis.

Rudolf Meyer[13] mentions one case of tuberculosis of lungs with abscess of brain, without any full reference. Professor Finlay[14] quotes a case of Dr. Hadden's of tubercular pyopneumothorax with abscesses in frontal and occipital lobes of the brain, also without full reference. The three cases of tuberculosis of the lungs, with cerebral abscess, I have included appear to be pure cases of tubercle of the lung. One is recorded by Huguenin[15] and two by Professor A. Fraenkel.[16] Fraenkel recognises the extreme rarity of the association of pulmonary tuberculosis and cerebral abscess. His patient, a mechanic, aged 27 years, had had tuberculosis of the lungs, with marked signs, for several years. Suddenly he developed slight paræsthesia of the right hand, followed rapidly by paresis of the right side of the face and right arm, and headache over the left frontal region laterally. There was no affection of consciousness till he passed into coma, and died in a few days. At the post-mortem examination an abscess was found in the left frontal lobe, just reaching the surface in the posterior portion of the third left frontal convolution. In this abscess there was no trace of "tubercular material" left. It was of the size of a hen's egg, limited by a definite membrane, and contained apparently ordinary pus. On microscopic and cultural examination no micro-organisms were found excepting tubercle bacilli.

Fraenkel's second record is not a case of his own, but a commentary on one recorded by Wernicke and Hahn[17] under the title "Idiopathisches Hirnabscess des Occipitallappens durch Trepanation Entleert." This is the history of a man, aged 45 years, who had had tuberculosis of the lungs for eight years, when he developed cerebral symptoms: paresis of the right forearm and leg, with right hemianopia. The position of the abscess was diagnosed; he was trephined over the occipital lobe on the left side and 1½ ounces of pus were evacuated. He lived 13 days after the operation and then died. At the post-mortem examination around the abscess cavity tubercles were seen. Professor Fraenkel points out that the word "idiopathic" does not properly apply to this case and that it was practically certainly an association abscess with tubercle of the lung.

Considering the extreme frequency of tuberculosis of the lungs, it is a striking fact that in connexion with it abscess of the brain should so seldom occur. Tuberculosis of the lungs is a common disease, bronchiectasis is relatively a rare disease. In the latter cerebral abscess is common, in the former it is most uncommon. Cerebral signs in tuberculosis of the lungs point almost invariably to tubercular meningitis. Cerebral signs in bronchiectasis mean in nearly every instance cerebral abscess. This point is of clinical interest, although there is not yet any case on record of recovery after trephining for cerebral abscess in association with lung disease. As for the reason for the rarity of cerebral abscess in tuberculosis of the lungs, it can at present be only a matter of conjecture. It is obvious that pus organisms of all kinds, in addition to tubercle bacilli, are present in abundance in the lung cavities. Perhaps the very thorough and firm blocking and occlusion of blood-vessels that takes place around tubercular lung foci, followed by their fibrosis and obliteration, does not afford fit opportunity for the dislodgment of thrombi and their passage to the brain.

5. *Acute pneumonia.*—Three cases recorded as acute pneumonia are included in my list. I cannot either at the Brompton or the London Hospital find any authentic case of cerebral abscess in association with acute pneumonia. The three cases recorded are two by Gull and Sutton[18] and one by Naether.[19] In Naether's case the patient seems to have died from pericarditis (1½ pints of pus in the pericardium) and the cerebral abscess (a very minute one) to have been of not much effect. In one of Gull and Sutton's cases it is questionable whether the cerebral abscess did not antedate the pneumonia; the other appears to have been a case of septicæmia following on pneumonia. There are in the recent literature no cases recorded of acute pneumonia and cerebral abscess. The associated cerebral lesion in pneumonia is meningitis and not abscess.

6. *Abscess of the lung* (Case 16).—Abscess of the lung is itself of infrequent occurrence, and one does not expect to find many cases of abscess of the lung in association with cerebral abscess. Böttcher's case[20] is of especial interest, as in the cerebral abscess he states that he definitely found lung pigment, and naturally from that fact deduced the embolic origin of the abscess from a pulmonary vein thrombus. This observation has been quoted repeatedly, and is clearly

[5] Clinical Society's Transactions, vol. x.
[6] THE LANCET, 1886, vol. i., p. 298.
[7] Aerztliche Intelligenzblätter, No. 40, 1889.
[8] Charité Annalen, 1903, p. 180.
[9] Deutsches Archiv für Klinische Medicin, 1884, pp. 168–189.
[10] Ziemssen's Pathologie und Therapie, xi., 1, 1878.
[11] Loc. cit.
[12] Berliner Klinische Wochenschrift, 1879, pp. 41, 60, 75.
[13] Dissertation, Zürich, 1867, Zur Pathologie des Hirnabscesses.
[14] Loc. cit.
[15] Loc. cit.
[16] Deutsche Medicinische Wochenschrift, 1887, No. 18.
[17] Virchow's Archiv, vol. lxxxvii.
[18] Loc. cit.
[19] Loc. cit.
[20] St. Petersburger Medicinische Zeitschrift, 1869, and Virchow's Jahresbericht, 1869, ii., 51.

of value. But the criteria for distinguishing pulmonary from other pigment are difficult to establish. No other confirmation of Böttcher's observation exists.

The case of pulmonary abscess here recorded (Case 16) is interesting clinically. The patient had been a soldier and had had dysentery in India. He was admitted to the Brompton Hospital for what turned out on examination to be a tropical abscess of the liver. He was operated on and improved; developed later a subdiaphragmatic abscess, and later still an abscess in the lower lobe of the right lung. He was operated on for these. After being in hospital four and a half months cerebral symptoms supervened, and he died with three abscesses in the left occipital lobe nine days after the onset of the first evidence of brain mischief.

7. *Emphysema and bronchitis* (Case 15).—It is difficult to believe that this cause can be other than a coincidence. In a disease so common as emphysema and bronchitis one instance of associated abscess of the brain can count for little. There is in all the literature only one such instance recorded by Petersson.[21]

The patient (Case 15) had typical emphysema and bronchitis of long standing. He was in the Brompton Hospital for four and a half months. After improving slightly at first under treatment with compressed air baths, later he had much dyspnœa, which was little relieved by anything that could be done. Six days before death he suddenly became drowsy, with severe headache and vomiting. He had several convulsive seizures, passed into coma, during which the convulsive phenomena persisted, and died. In a very careful post-mortem examination no pus could be found anywhere except in the brain. There were general bronchitis and marked emphysema, but no distinct bronchiectasis could be discovered. At the apex of the right lung was a small patch of obsolete tubercle. In the brain were nine abscesses, filled with greenish pus. They were situated in both the right and left hemisphere and in the cerebellum, and varied in size from that of a walnut to that of a pea. One of them, containing brownish pus, was limited by a definite capsule.

Though it would be absurd to try to trace any definite connexion here between lung and brain conditions, it is worth considering whether such is possible. Between bronchitis and emphysema and bronchiectasis there is no absolute line of division. The emphysematous condition of the alveolar lung tissue and the bronchiectatic condition of the bronchial tubes have some pathological links. One or two dilated tubes, with thrombosed vessels around them, may easily escape observation in a post-mortem examination.

There are still occasionally recorded cases of so-called "idiopathic" cerebral abscess. These have a cause at present unknown. It would be well, as Fränkel points out in the case of tubercle, that the possibility of emphysema and bronchitis as an antecedent cause of an obscure cerebral abscess should be borne in mind. Further than this it is impossible to go at present.

THE NUMBER, DISTRIBUTION, AND PATHOLOGY OF CEREBRAL ABSCESSES IN ASSOCIATION WITH PULMONARY DISEASE.

"In an important group of cases an abscess of the brain is the result of suppuration elsewhere, but no indication of general pyæmia can be discovered. Such cases are separable from the pyæmic form practically but not theoretically. The occurrence of the secondary suppuration in the brain and not elsewhere is remarkable and unexplained. 10 per cent. of all cases of cerebral abscess are of this origin."[22] Next to trauma and otitis media, pulmonary diseases are the most common cause of suppuration in the brain. Rudolf Meyer's figures were: trauma 21·88 per cent. of the cases, otitis 20·86 per cent., lung conditions 12·86 per cent. Of the distant suppurations leading to abscess of the brain, pulmonary diseases are by far the most important. "The abscess is single in about half the cases, and is generally situated in the cerebral hemispheres, especially in the posterior lobes. The cerebellum is not often affected from this cause and never suffers alone."[23]

As far as I can gather from the literature on the subject a sufficient number of cases of abscess of the brain secondary to pulmonary disease has never been collated in a manner to justify any reliable numerical deductions being drawn. I have attempted to do this here, but even those cases I can bring together seem a rather inadequate number, though much larger than any previously compared. Of my 19 cases only 18 are available, as in the last, No. 19, no post-mortem examination was allowed, and therefore it is uncertain whether there was only a single abscess or more than one.

(*a*) *The number of abscesses in cases where they occur in association with pulmonary disease.*—Of my 18 cases, in 11 there were single abscesses in the brain and in 7 more than one abscess. To these 18 I have been able to add 33 from the literature, where the clinical and post-mortem records are sufficiently full to make accuracy possible. That makes 51 cases. Single abscesses occurred in 32 of these, multiple abscesses in 19, giving a percentage of 62 per cent. of single abscesses, and 37 per cent. of two or more abscesses. Gowers,[24] in his analysis of cases states: "From *local* causes the proportion of cases in which there are more than one abscess is only 13·5 per cent.; from distant causes it is 61 per cent." Pulmonary conditions, therefore, leading to cerebral abscess appear to have a much less tendency than other distant causes to produce multiple abscesses.

(*b*) *The side of the brain chiefly involved in cerebral abscess secondary to pulmonary disease.*—Opinion has varied as to which side of the brain is most frequently involved in abscess. Taking all causes, there does not seem to be any marked difference in liability between the two sides. But in the cerebral abscess associated with pulmonary conditions the left side of the brain is much more often its seat than the right. Of my 18 cases:—

	Left.	Right.	Middle lobe of cerebellum.
11 single abscesses	8 ...	2 ...	1
7 Multiple abscesses (2 or more)	3 ...	0 ...	0

while in four cases of multiple abscesses they were situated on both sides of the brain. Thus in my 18 cases the left side of brain was involved alone 11 times, the right side alone twice, middle lobe of cerebellum once, and both sides of brain were affected four times. This gives a ratio of 11 left to two right, or in proportion of 5 left to 1 right. These figures certainly make the disparity too great, but they bring out the important fact that the left side of brain suffers much more than the right side in the cerebral abscess secondary to pulmonary disease.

Taking the wider figures, out of 51 cases of cerebral abscess in pulmonary disease there were:—

	Left.	Right.	Middle lobe of cerebellum.	
Single abscesses	25	7	1	= 33
	Left.	Right.	Both sides.	
Multiple abscesses... ... (2 or more)	3	6	9	= 18
				51

Which means that in single abscesses the abscess is more than three times more likely to occur on the left than on the right side; and taking single and multiple abscesses together the left side is more frequently affected than the right in the proportion of 28 to 13, more than 2 to 1.

This fact is of interest in reference to the *pathology* of cerebral abscess secondary to pulmonary disease. That these abscesses are produced by the action of tiny thrombi dislodged from small branches of pulmonary veins, carried to the left auricle and left ventricle direct and so into the aorta, has long been held as certain. Proof there is very little. Böttcher's observation is of value as far as it goes. Even in the case of sudden death after epileptiform seizure when the pleura has been irrigated no thrombi in the arteries of the brain have been found. The fact that the left side of the brain is affected more than the right, in the proportion of *at least* 2 to 1, at once suggests the similar fact that in cerebral embolism from cardiac valvular disease the embolus occurs much more often on the left than on the right side of the brain. But though this is almost certain, the pathological obscurity surrounding this association of abscess of the brain with disease of the lung (where no abscess is found anywhere else in the body) remains unsolved. In cerebral embolism from cardiac valvular disease there are infarcts in many other organs—spleen, kidney, &c. In cerebral abscess from pulmonary disease, in the very great majority of cases there are infarcts and abscess nowhere else.

To say that the brain has a special predisposition to

[21] Schmidt's Jahrbuch, vol. clxxiii., p. 128.
[22] Gowers: Loc. cit.
[23] Ibid.
[24] Loc. cit.

suppuration is pathologically inaccurate, for it is well recognised that in general pyæmia, from whatever cause, the brain is by no means the organ most frequently affected. Possibly, though it is merely a surmise, events may prove that, though not specially liable to suppuration, the brain is not so fully protected in these chronic cases of suppuration by antitoxic substances formed in the body as are other organs, and therefore does not resist the septic embolus from the lung so efficiently. For if these cerebral abscesses are embolic, as appears certain, it is impossible to doubt that some similar thrombus emboli are carried to other organs, though they do not produce suppuration there.

Case No. 20 is recorded here as an instance of extreme thrombosis of veins in association with bronchiectasis. There was no cerebral abscess.

(*c*) *Which lobes of the brain are chiefly affected by cerebral abscess secondary to pulmonary disease?*—Of my 18 cases, 11 showed only a single abscess, 7 two or more abscesses. The 11 single abscess were distributed thus: frontal lobe, 2; parietal lobe, 4; occipital lobe, 1; temporo-sphenoidal lobe, 1; cerebellum, 2; and central ganglia, 1. The seven multiple cases were situated thus: frontal lobe, 1; occipital lobe, 1; temporo-sphenoidal lobe, 1; and 4 widely diffused on both sides of the brain.

It profits little to try to analyse the positions of the abscesses in the multiple cases. In my larger group of 51 cases, 32 were single abscesses, distributed as follows: frontal lobe, 9; frontal and parietal lobes, 1; parietal lobe, 9; parietal and occipital lobe, 4; occipital lobe, 4; temporo-sphenoidal lobe, 1; cerebellum, 2; and central ganglia, 2. The figures show that though the cerebral abscess secondary to pulmonary disease shows a marked predilection for the left side as compared with the right, there is no evidence that one lobe of the hemisphere is affected more than another. Gintrac and Gowers[25] say that the posterior portion, and Rudolf Meyer[26] that the anterior portion of the hemisphere is chiefly involved. There seems nothing to choose between them. There are in my 18 cases two (Cases 6 and 12) in which the cerebellum was *alone* involved. I can find no other such in the literature, and Gowers states "the cerebellum is not often affected from this cause, and never suffers alone." It is obviously very rare for the cerebellum to suffer alone.

I have not discussed the question of whether the abscesses generally arise in the white rather than in the grey matter of the brain, as it is generally admitted now that they usually begin in the white matter.

CLINICAL OBSERVATIONS.

As in all forms of abscess of the brain, that which is found in association with pulmonary disease occurs much more frequently in men than in women. Of the 19 cases here recorded 16 were men and only 3 women. Of 47 cases, mine and others in the literature, 39 were men and 8 women, a proportion of nearly 5 to 1. In age distribution, of the 47 2 were under 10 years old; 7 between 10 and 20 years; 12 between 20 and 30 years; 15 between 30 and 40 years; and 11 above 40 years. Such abscesses are clearly very rare below the age of 10 years and progressively more common in each of the next three decades, being most common between 30 and 40, but the difference is not a very great one between the third and fourth decades.

Symptomatology.—Nothing materially new in the symptomatology of cerebral abscess is to be derived from an analysis of these cases. They are abscesses of brain developing in individuals usually exhausted by long illness, an illness which is continuing during the whole course of the abscess in the brain, and confusing the symptoms of cerebral disease. But of the two main forms of cerebral abscess those connected with lung disease approach more to the acute than to the chronic type. From the onset of the first cerebral symptoms till death is usually a very short period. In the 19 cases here recorded it will be seen that the duration of cerebral signs till death varies from three to 28 days, and the average is ten days.

Latency.—Of any marked latency there is very little evidence in this type of cerebral abscess. Such an occurrence as that recorded by Gull[27] of eight months interval between the first cerebral seizure and the second set, quickly leading to death, is unique. In one only of my cases, Case 5, the patient, a woman 42 years old, had to be sent to the infirmary two months before the onset of the acute cerebral signs preceding death (this period lasted 11 days) on account of delusions. At the post-mortem examination the abscess in the brain had no defined wall and appeared to be recent. The occurrence of delusions seems here merely to have been a coincidence. Apart from this, there is in none of the other 18 any clinical evidence at all suggesting cerebral mischief till the beginning of the final onset.

It is recognised now that the presence or absence of a definite limiting membrane around a cerebral abscess is of very small value in estimating its age. The actual presence of a firm capsule denotes that the abscess is of about at least 3 to 4 weeks' duration (Lebert), 7 to 10 weeks' duration (Gull), 6 weeks' duration (Rudolf Meyer), 6 to 7 weeks' duration (Huguenin). These statistics are taken, of course, from traumatic cases in which alone are the data available. One knows that an encapsuled abscess with well-defined wall is probably more than five weeks old. But an abscess in the brain may be very much older than that and show no trace of capsule. The absence of capsule does not prove that the abscess is recent.

Of the 18 cases here recorded 4 had a definite capsule and 14 had none. "Taking all cases together it is about equally common for a capsule to be present or absent."[28] A capsule is apparently less often present in this group of cases than happens generally. Two of these, where a capsule was present, Cases 1 and 10, had a duration of nerve signs of 28 and 18 days respectively, the two longest in the group, and even on the shortest estimate the abscess must have been present and latent for some time, in Case 10 certainly, and in Case 1 probably, without giving any sign of its presence. In the other two cases (Cases 3 and 15), where there was a definite capsule, the time elapsing between the first nerve sign and death was only ten and seven days respectively. In these undoubtedly the abscess was present and latent before the onset of the nervous phenomena. In the 14 cases without capsule it is impossible to deduce any reliable conclusion as to the date of formation of abscess. It is more probable that they are recent but beyond proof.

The order of the signs and symptoms in this group of cerebral abscesses.—An analysis of these 19 cases gives the very first sign of the abscess as headache and vomiting in 5, headache in 4, epileptiform seizures in 4, dulness and drowsiness in 2, paralysis in 1, paræsthesia in 1, depression and melancholia in 1, and vomiting and incoördination in 1. This last (Case 12) occurred in a patient with abscess in the left lateral lobe of the cerebellum.

Headache, vomiting, local or general convulsions, drowsiness, paralysis, coma, is the usual march of signs and symptoms, not varying in any essential way from cerebral abscess due to any other cause. It is rarely that one finds the typical subnormal temperature, infrequent pulse, and respiration of the uncomplicated cerebral abscess. The pulmonary conditions profoundly modify all three, so that somewhat high temperatures, frequent pulse and respiration, occur not uncommonly in cerebral abscess associated with pulmonary disease. With regard to (*a*) pupil phenomenon, (*b*) optic neuritis, and (*c*) deep and superficial reflexes, this group of cases does not differ perceptibly from the general run of cerebral abscesses.

Localisation.—Localisation is even more difficult in this group of cerebral abscesses than in cerebral abscess generally. There may be absolutely no localising signs, and that whether there be one or more abscesses present. Occasionally the signs are so definite that in a case of multiple abscesses, first one and then a second abscess may make its presence clear. Case 7 is a striking example of this nature, an abscess in the left motor area revealing itself first, and being followed by typical signs of abscess in the right occipital lobe. But the signs may be definite and unreliable, as in Case 16, where what clinically appeared to be a lesion in the Rolandic area, proved at the post-mortem examination to be a series of small abscesses in the occipital lobe, with extreme softening and disorganisation of the brain tracking forward.

TREATMENT.

Operation for the evacuation of the abscess, in cases where localisation is possible, is clearly indicated, but the chances of effectively relieving the patient are very small. The general ill-health precludes any real possibility of success.

[25] Loc. cit. [26] Loc. cit. [27] Loc. cit.

[28] Gowers: Loc. cit.

So far no actual recovery is on record. In Drummond's case[29] an abscess of the brain following on empyema, with twitchings and paresis of the right side, was all but opened at the operation. It lay a little further forward in the frontal lobe than had been anticipated.

There is a double interest in Eskridge and Clayton-Parkhill's case, "Two abscesses of the brain caused by septic emboli resulting from gunshot wound of the lung inflicted 32 years previously."[30] It is very like one of the earliest quoted cases in that the bronchiectasis leading to the cerebral abscess was the result of a bullet impacted in the right lower lobe. The signs of cerebral lesion began with twitching of the left side of the face, rapidly involving the left arm and leg, and passing on to paralysis of the whole of the left side. An abscess in the right Rolandic area was successfully opened and drained, but the patient died four days later. At the post-mortem examination there proved to be a second silent abscess in the anterior part of the right frontal lobe. In Case 19 of this record the diagnosis was happy, and Mr. Barnard opened an abscess in the right temporo-sphenoidal lobe. The patient did not recover and no post-mortem examination was allowed, so whether there were other abscesses or not remains uncertain.

NOTES OF CASES.

B.H. = Brompton Hospital. L.H. = London Hospital.

CASE 1. *Cylindrical bronchiectasis; abscess of the brain (left parietal lobe).*—A man, aged 40 years, baker. Dr. Theodore Williams. April 28th to July 6th, 1882. B.H. Was an in-patient at Bath United Hospital from June 30th, 1881, to April 27th, 1882, with dyspnœa on exertion, weakness, and wasting; profuse night sweats. Temperature to 100°–101° F. in the evening, 100° in the morning. At beginning of August, 1881, temperature rose to 102° in evening and patient became very weak. On admission to Bath Hospital impaired resonance and increased vocal fremitus over whole of right chest, abundant râles bubbling and gurgling; tubular breath sounds in places, especially over lower part of back and interscapular regions, partially cavernous. Left lung quite free until middle of September, 1881, when large sized crepitations were heard over left back and front and below level of nipple, without any dulness. Dec. 7th, 1881: Bubbling râles with large crepitations at base of left lung; a small patch of tubular breath sounds with whispering pectoriloquy opposite spine of left scapula. No family history of phthisis or cancer. No previous illness except measles. Cough began 12 months ago when he caught cold. No hæmoptysis. Abundant purulent fœtid expectoration. Urine 1025; no albumin. Pulse 106. Temperature 99·4°.

Physical examination.—Right chest: Emphysematous. Resonance to upper border of fourth rib; below, marked dulness. Intercostal spaces retracted during inspiration. Bronchophony whole front; coarse crepitations replaced in certain points by gurgle and tubular sounds, chiefly in second, third, and fourth interspaces between nipple and shoulder. Posteriorly resonance marked to below angle of scapula, below which dulness and retraction of intercostal spaces as in front. Crepitations throughout; gurgle and tubular breathing between ninth and tenth ribs immediately below angle of scapula and at same level two inches nearer spine. *Left lung:* Posteriorly crepitations over whole lower half with some wheezing.

May 22nd, 1882. Thoracocentesis by means of trocar and cannula with director attached, a cutaneous incision having been made from fourth to eighth rib along a vertical line drawn through a point two inches to right of right nipple. Fœtid matter having been discharged, the opening was enlarged and a gum elastic catheter introduced. The shreddy substance thus evacuated was examined for tubercle bacilli, but none were found. The discharge continued freely, but gradually became less offensive. The sputum was much less fœtid on the day after the operation, and soon became quite sweet. There was much diarrhœa, which weakened the patient. June 12th: Temperature has been up last few days; rather more discharge. Headache complained of since 8th (28 days before death). June 17th: Temperature 101·8°. Pulse 120. Headache severe and vomiting. June 19th: Headache severe, no vomiting. June 22nd: Headache severe. Discharge increased and offensive. June 23rd: Headache worse. June 26th: Left pupil larger than right. July 1st: Getting weaker. July 2nd: Drowsy. Headache less. July 6th: Death.

Post-mortem examination.—Right pleura universally adherent by means of strong fibrous tissue. Left pleura normal. *Right lung:* Deeply congested, practically devoid of air. The tissues collapsed, sodden, congested, and infiltrated with pus. A more or less uniform dilatation of all the small bronchi was noticeable on close inspection. Saccular dilatations as large as peas or almonds existed in the thickness of the basic fringe from sternum to vertebræ, but the main disease was situated in the lower part of the upper lobe anteriorly, and in the anterior portion of the lower lobe. The greater part of the sternal portion of the upper lobe was converted into a baggy multilocular sacculation, the walls of which were thin but very tough and fibrous; fœtid fluid occupied all the cavities, which were typically bronchiectatic. This bronchiectasis was as large as a good-sized orange. In the sternal portion of the lower lobe the sacculations were much smaller but very numerous, and separated by a tissue thoroughly soaked and macerated in purulent fluid. The posterior parts of the lung were comparatively free from disease, with the exception of the interscapular region 2½ inches above the diaphragm. In this position was found a small system of sacculations altogether as large as a walnut. *Left lung:* Crepitant throughout, tolerable healthy, but of rather low specific gravity. No bronchiectasis was discovered in this lung. No tubercular or caseous deposits were found in either lung.

Larynx and trachea normal. All abdominal organs normal. The brain weighed 3 pounds 7 ounces. A cyst, as large as a Tangerine orange, with thick (¼th to ½th inch) tolerably tough walls, filled with pus, was found in white substance of brain (left hemisphere, posterior part of parietal lobe).

CASE 2. *Bronchiectasis (saccular); abscess of the brain (left temporo-sphenoidal lobe).*—A man, aged 32 years; letter carrier. Dr. Reginald Thompson. Oct. 3rd, 1883, to Jan. 13th, 1884. B.H. Never had a day's illness till six months before admission. Then caught severe cold; soon after began expectorating much foul sputum. One month after onset had severe hæmoptysis, lasting 14 days; perhaps one pint of blood altogether. Much emaciated. Some bulging in right scapular region and below. Marked dulness on percussion over right lung posteriorly. Tactile vocal fremitus absent. Patient was needled on two occasions on right side, but only blood and air withdrawn. Oct. 16th: Temperature 101° to 102° F. Profuse expectoration. Between seventh and tenth ribs anteriorly, cavernous respiration, and marked bronchophony. Whispering pectoriloquy. Dec. 18th: Patient making no progress. Profuse sputa, about one pint a day, very foul. Tongue coated. Evening temperature about 102°. Dec. 21st: Patient was anæsthetised (chloroform) and a long needle inserted in fourth right space, just outside nipple. Only a little blood was withdrawn. Patient at once spat up some purulent expectoration mixed with frothy blood. Dec. 23rd: Patient being anæsthetised and turned on left side, Mr. Marshall made an incision 2 inches long in the eighth right interspace, just in front of the angle of the rib. A pointed director and thin sinus forceps were passed in, but no pus was found. Patient coughed up some blood at intervals. The hæmoptysis lasted several days. Jan. 2nd (11 days before death): At 10 A.M. patient had a convulsion and became cyanosed. Breathing hurried and laboured and cough troublesome and persistent. Soon became unconscious, but no spasm remained. There was loud whistling through tube in thorax. When he came to was rather rambling. At 11.15 A.M. another convulsion, with loss of consciousness. Right conjugate deviation of both eyes and clenching of jaw, but no other spasm. The spasm of eyes passed off in a few minutes. During the afternoon patient was quite rational again. Jan. 3rd: No more attacks. Jan. 10th: Severe headache. Became very dull towards evening. Jan. 11th: Rather restless, then dull, and took no notice of questions. Pupils contracted, dilating when he is roused. Incontinence of urine. Gradually became unconscious. Breathing rapid and noisy. Pulse 80; strong. Jan. 12th: Patient in about the same condition. No expectoration. Incontinence of urine. Can swallow well. No further convulsions. No definite paralysis. Once or twice during the day he was able to recognise his wife, and at times would open his eyes when spoken to. He lay mostly on right side with eyelids drooped, pupils contracted. Respirations 40. Pulse 100. Jan. 13th: Mental condition unchanged. Respirations 48. Right pupil smaller than the left. Death at 11 A.M.

Post-mortem examination.—Rigor mortis present. Considerable wasting of the body. A small oval opening in chest wall was found on the right side, just inside the scapular line, in eighth intercostal space. The lower of the two ribs bounding the opening was stripped of its periosteum and of a greyish colour. A probe could be introduced through the opening in an upward direction for 7 inches. On opening the chest the right lung was unusually adherent to the chest wall and pericardium, except at the upper sternal border above the second rib. The left lung was free throughout, except for scattered adhesions to the pericardium. Pleura on right side very thick and densely adherent.

Lungs.—Right lung much contracted in all directions; enormous fleshy thickening of pleura covering its surface and dipping down between the lobes. At the posterior border of the lung, 2 inches below the bifurcation of the trachea there was an oval opening, corresponding to the external one, large enough to admit the second finger. The upper, middle, and lower lobes contained trabeculated cavities of peculiar character. The cavities consisted of more or less spherical compartments separated by trabeculæ of various thickness. The cavity walls were thin and smooth and were directly continuous with the lining membrane of the bronchial tubes, which were all much dilated. The cavities contained inspissated, foul, caseous-looking material of a putty-like consistence which could be removed without difficulty. There was no adherent caseous matter of the ordinary kind in the cavities, nor were there any caseous nodules or tubercles in the lung tissue anywhere. The intervening tissue in the main consisted of œdematous, collapsed, pigmented lung with a considerable amount of fibroid induration in special places—i.e., at the apex, where there was distinct thickening, and along the posterior border generally. This induration diminished towards the front, and the upper lobe in front was almost of ordinary spongy consistence. The cavities had the following distribution. Along the posterior border there was a set of cavities of comparatively small size in the upper lobe, a large set at the upper border of the lower lobe, and another set at the base. In addition there were similar trabeculated cavities at the lower axillary border of the upper lobe, where the wall consisted simply of the thin adherent pleura. This cavity, which was bilocular and large enough to hold two pigeon's eggs, resembled a gigantic emphysematous bulla. Another set of cavities of about the same size was situated at the axillary base, and a few small ones were seen towards the anterior border of the middle lobe. Bronchi universally dilated. Left lung very œdematous and somewhat congested. Bronchi reddened and filled with frothy secretion. Several pigmented patches with small opaque centre in connexion with small bronchi. No other change. All air passages deeply reddened.

Heart weighed 9 ounces. Flabby. Mitral valves slightly opaque. Some atheroma of aorta.

No abnormalities in abdominal organs, beyond that small intestine showed iodine reaction.

Brain.—Calvaria healthy. Pale scanty clots in sinuses of dura mater. Base of brain covered with pus. No flattening of convolutions. Convex surface of normal appearance. The pus extended from the olfactory nerves backwards continuously over the structures at the base and over the surface of the pons and medulla. No miliary tubercle present. Vessels at base appeared quite healthy, as did all the larger cerebral vessels generally. On opening the ventricles their lining was seen to be throughout of a blackish-grey colour and greatly softened. The ventricles contained a little greyish pus only. There was more on the left side than on the right. An abscess was found in the left temporo-sphenoidal lobe as large as an egg plum communicating with the posterior cornu of the left lateral ventricle. Another small abscess

[29] THE LANCET, 1887, vol. ii., p. 7.
[30] New York Medical Journal, 1895, vol. lxii., p. 169.

as big as a filbert containing greyish pus like the other abscess was situated just outside, but had not communicated with, the anterior cornu on the same side. The pus seemed to have found its way down to the base in the region of the anterior commissure where the structures were quite diffluent. The cerebral ganglia with the exception of the parts lying in the ventricles were quite healthy. The same can be said of the pons, cerebellum, and medulla. No thrombosis could be detected anywhere.

CASE 3. *Bronchiectasis (saccular); morbus cordis (aortic stenosis); abscesses of brain (left frontal lobe).*—A man, aged 33 years; French polisher. Dr. F. Roberts. B.H. Dec. 31st to April 12th, 1884. Family history: Father died of bronchitis. "Potus." No syphilis. Eight months ago the illness began with general pains, soon followed by cough and expectoration; then some hæmoptysis and pain on right side. Expectoration copious and frothy. Slight hæmoptysis once or twice in hospital. April 2nd: Unconscious. Foamed at the mouth. Face contorted. Mouth drawn to the right, mouth open. Pupils dilated and equal during attack and afterwards. Muscular spasm beginning in right arm. Half an hour after the first attack patient had a second attack in which the spasm began in the right arm; then face was drawn to the right. Lasted five minutes. Several similar attacks subsequently. April 2nd to the 6th: Tongue protruded to the left after the attacks. April 8th: Able to walk, but with some difficulty. April 9th: Hemiplegia of right side. Mouth drawn to left. Knee-jerks exaggerated. Pupils equal. Slight anæsthesia of the right side. Semi-comatose from this time till death three days later, April 12th. Temperature subnormal last three days. At end, right pupil rather larger than left; both contract to light.

Post-mortem examination.—Rigor mortis present. Body fairly well nourished. On opening the thorax the left lung was seen to come over to the right border of the sternum overlapping the aorta. Right apex much contracted and retracted from the sternal border.

Pleuræ.—Right: Universal and dense adhesions except over lower half in front. *Left:* Firm apex adhesions.

Larynx.—Healthy. Trachea and bronchi show greenish discolouration.

Lungs.—Right: Apex and greater part of upper lobe much indurated, containing irregular fibroid strands, and traversed by numerous bronchiectatic cavities, which are somewhat trabeculated. The trabeculæ consist of indurated fibrous tissue. The cavities are largest about three inches below apex, at axillary and anterior borders; they exist also at the sternal border; there is a similar smaller cavity at the extreme apex. Similar small cavities at the upper margin of the lower lobe posteriorly. The largest cavity in the axillary region is as big as a pullet's egg, but it is difficult to be exact as the cavities were much honeycombed in appearance. The middle lobe is very fibrous and traversed by much dilated bronchial tubes. All the cavities and dilated tubes contain foul-smelling, somewhat gelatinous secretion. *Left:* Somewhat congested and irregularly pigmented; the smaller bronchial tubes in many places are slightly dilated, and contain secretion similar to that in the cavities of the right lung. The amount of fibrosis was out of all proportion to the excavation present, the fibroid change being of slight degree, and mainly in the form of intersecting bands enclosing imperfectly spongy lung. The fibrous tissue was most marked at the sternal border of the middle lobe and had the appearance of collapse induration. The excavation, on the other hand, was very extensive and diffuse. Bronchial glands of normal size contain small calcareous concretions. Mediastinal glands slightly enlarged; no concretions. Tracheal glands enlarged and pigmented.

Heart.—Left ventricle somewhat dilated. No hypertrophy appreciable. The aortic valves extremely thickened, puckered, and adherent to one another. There are a few small pieces of adherent fibrin on the surface, and the free edge presents a nodular thickening, mainly affecting the right valve; there is a small patch of thickened endocardium, just below the right valve. The aortic orifice is much stenosed. Other cardiac valves normal. The aorta shows scanty and patchy atheroma just above the valves.

Kidneys.—11 ounces. Capsules slightly adherent; organs healthy.

Spleen.—9 ounces. Soft.

Liver and all other abdominal organs quite healthy.

Brain.—Calvaria, membranes, vessels all normal. In the position of the ascending frontal convolution, left side, and to some extent in the posterior extremity of the left middle frontal convolution, there is distinct greyish yellow discolouration, with flattening of surface. The texture of the whole brain is soft, but at this point is distinctly softer than anywhere else. On making a horizontal longitudinal section, an abscess with a tough lining membrane was found, as large as a good-sized walnut. It was situated beneath the ascending frontal convolutions, about two inches external to the great median fissure. The abscess encroached on the posterior extremity of the middle frontal convolution. Just below it was a second abscess as big as a large bean. Both abscesses contained greenish gelatinous pus. The substance of the middle frontal convolution for about one inch in front of the abscess was of a somewhat yellowish colour, and distinctly softened. The white matter below the abscess to the lateral ventricle was reduced to a soft pulpy condition. The ascending parietal convolution was not markedly softer than the rest of the brain near, though the white matter was distinctly softer. Both ventricles contained a little turbid, blood-stained serum. The rest of brain was normal.

CASE 4.—*Bronchiectasis (two fairly large cavities); abscess of brain (left temporo-sphenoidal lobe).*—A man, aged 20 years; labourer. Dr. Mitchell Bruce. March 19th to May 30th, 1890. B.H. Well till five months ago except that for five years he has been liable to fits, apparently epileptic. Ill-defined area of "creepy feeling" about face. Then illness began suddenly with pain in the right side and back. No rigor. Cough and dyspnœa followed. Sputum became offensive suddenly, a week or two later. Patient was never in bed, but has done no work for five months. At right base posteriorly there are dulness, absence of tactile vocal fremitus and vocal resonance, and almost no air entry. March 20th (under chloroform) nine punctures were made into right lower lobe; no pus reached. Some very offensive, curdy-looking material escaped. (Portions of eighth and ninth ribs had been excised.) Coughed up sputa freely after the operation. March 25th: Sputa profuse and offensive. Last two evenings slight epileptic fits. March 28th: Needled in several directions. No pus found. April 2nd (under chloroform): Freely needled without result. April 18th: Sputa less in quantity the last few days and not offensive. The opening in chest wall contracting. Temperature normal. Respiration quiet and normal. Right base, postero-lateral aspect flattened more than before. Dulness and absence of breath sounds as at first. May 9th: Sputa increased in quantity and more offensive. May 20th (under chloroform): About three inches of eighth rib behind were removed. Pleura was adherent (a piece of this rib had already been excised, so it had only to be divided posteriorly). The needle was then inserted and foul material withdrawn lying one inch below surface. The opening was dilated, and on passing the finger in it went into an irregular trabeculated cavity with very soft walls. The expectoration became much less after the operation, dropping from ʒvii–ʒx to ʒiiss–ʒi. It was still very foul. May 26th (five days before death): Had a fit at 6 P.M. and another, more severe, later in night. Seemed dazed afterwards. May 29th: Still dazed. Slow cerebration. Pupils equal. Knee-jerks rather increased; other reflexes normal. Grasp of right hand weaker than left. Complains of headache; worse on left side. May 30th: Lies on his back; does not answer questions and will not protrude tongue. Pupils large and equal. Vomiting. Retention of urine. Headache. May 31st: Unconscious. No paralysis. No optic neuritis. Incontinence of urine and fæces. Death. Temperature was practically normal from March 20th to May 7th. From May 7th to May 16th it ranged between 99° and 103°. It then became normal and rose gradually from May 24th till death (103°).

Post-mortem examination.—Rigor mortis marked. Body fairly well nourished. Opening (artificial) in right side of chest; portions of eighth and ninth ribs resected. On removing the sternum loose fibrous adhesions were seen over the right lung, becoming dense and uniform around the opening in the chest wall. Left pleura healthy. The opening in the chest wall was lined with a firm granulating layer; it opened freely into a cavity in the lower lobe of the right lung. The *trachea* and *bronchi* were red and discoloured.

Lungs.—Right: Upper and middle lobes imperfectly spongy and œdematous. The base of the right lower lobe in the postero-lateral region contained a cavity the size of a bantam's egg, or rather larger, of rounded shape, and *hard*, with a definite tough capsule of no great thickness. Into this vomica at its upper border a bronchus opens freely, the wall of the bronchus passing insensibly into that of the cavity. The cavity contains a little dirty putrid secretion. The cavity communicates by a small opening with a similar smaller vomica above its outer side. The second cavity is lined with a thinner and incomplete capsule and freely communicating with another bronchus. The lung tissue of the lower lobe around these cavities is airless and of a dirty-red colour and firm. In places fibrous bands can be traced, but more generally the lung has a uniform, flabby, toughish consistence. (The appearances were somewhat modified by putrefaction.) No trace of tubercles. No general dilatation of bronchi. *Left:* Œdematous and engorged.

Heart and all abdominal viscera normal except for post-mortem decomposition.

Brain: Vertex normal. The base covered with a thin layer of pus. On removal of pia mater an abscess the size of a bantam's egg was found in the left temporo-sphenoidal lobe, communicating with the lateral ventricles left and right. The walls of the abscess and of the ventricles were discoloured, greyish green, and ragged. The discolouration was most marked in the abscess cavity and in the left ventricle. Walls of ventricles very soft.

CASE 5. *Bronchiectasis (large cavity); abscess of brain (right parietal lobe).*—A female, aged 42 years; needlewoman. Dr. Kingston Fowler. B.H. June 8th to Oct. 8th, 1896. In autumn of 1895 had "pleurisy and congestion of lungs." Coughed up much thick and very offensive material. Several attacks of hæmoptysis while in hospital. July 23rd: She was sent to Kingston Infirmary as she had delusions and disturbed other patients. August 18th: Returned to Brompton Hospital, the delusions having ceased. Sept. 27th: Temperature rose to 101·8° F. Sept. 28th: Bad headache and nausea (11 days before death). Sept. 30th: Difficulty in moving the left arm. Very drowsy. Left eye more uncovered than the right. Tongue when protruded is deflected to the left. Skin over right side of forehead more wrinkled in frowning than on left. Sensation is more marked on right side than on left. Grasp of left hand is powerless. Knee-jerks normal. Pupils equal and react to light. No nystagmus. Oct. 5th: Sphincters relaxed. Oct. 6th: Comatose. Knee-jerks absent. Patient remained in same condition and died Oct. 8th.

Post-mortem examination.—Body fairly well nourished. Rigor mortis marked.

Pleuræ.—Natural.

Lungs.—Right: Upper lobe œdematous and engorged; some emphysema. At the base of the upper lobe is a large sacculated cavity connected with the bronchi. The size of the cavity is about that of a large walnut. The lower lobe is engorged and œdematous. *Left:* The whole lung is engorged and œdematous. Some emphysema.

Heart.—Left ventricle slightly hypertrophied. 11 ounces. Muscle and valves healthy. A little excess of fat about the heart.

All abdominal organs natural, except that there was slight fibrosis of kidneys. They weighed 11 ounces.

Brain.—Surface of brain anæmic. Left hemisphere normal. In the right hemisphere, about midway between the fissure of Rolando and the Sylvian fissure, but mostly posterior, is an abscess about the size of a small Tangerine orange, and filled with very offensive pus. The abscess almost pointed superficially, and extended back towards, but not as far as, the lateral ventricle. It had not ruptured into the lateral ventricle.

CASE 6. *Empyema; bronchiectasis; abscess of middle lobe of cerebellum.*—A female, aged 27 years. Dr. Green. B.H. Nov. 28th, 1900, to Feb. 5th, 1901. Hæmoptysis for last five and a half years. Little cough except when blood coming up. Three and a half weeks ago, renewed hæmoptysis, more than a cupful. Pain in right side. Dyspnœa. Cough. Anorexia. On examination left lung is normal. Right lung slightly dull on percussion everywhere; chiefly at base posteriorly. Crepitations everywhere with faint breath sounds, vocal resonance increased at scapular spine. Profuse and offensive expectoration. Pain in right side on coughing. No tubercle bacilli in sputa. Rigidity of arms. Drawing up of angles of mouth. Jan. 7th: Complains of a lump over front of right chest; it is situated near junction of sternum and first, second, and third right costal cartilages. Jan. 10th (under chloroform): Mr. Stanley Boyd made an incision over the swelling on the right side of chest, beginning near the right edge of the sternum and extending outwards parallel to the ribs for about five inches. A collection of pus was found beneath the pectoral muscles. With a probe an opening was found passing into the chest in second interspace, two inches from right sternal margin. This was enlarged and found to lead into a limited empyema cavity occupying the upper part of the right chest

Patient did well till Feb. 3rd. Wound till then looked well; the discharge was very slight. Feb. 3rd: Nausea and vomiting began and drowsiness. Headache. All these gradually increased. Incontinence of urine and fæces. Rigidity of both arms and some drawing up of angles of mouth on both sides. The pupils are contracted. Knee-jerks absent. Quite unconscious. The temperature, which had been quite normal from Jan. 11th to Feb. 1st, began to rise then to 103° on Feb. 3rd, and 105·4° on Feb. 5th in morning, and reached 108° just previous to death. Knee-jerks absent before death.

Post-mortem examination.—Body very fat. Rigor mortis present.

Pleuræ.—The left was practically free but for a few slight adhesions. The right pleura posteriorly was more or less free; anteriorly it was densely adherent from apex to base; the adhesions extended into the axilla. Over this area it was likewise much thickened. This was especially marked towards the upper part of the lung, where it was about one-third of an inch in thickness. This thickening was evidently secondary to an empyema which had formed over the upper and anterior portion of the right lung. This had pointed anteriorly opposite the first and second spaces and had been opened three weeks before death and a portion of second rib cartilage excised. The cavity of the empyema had almost closed; its contracted area extended from the extreme apex of the lung down to the third space, forming a hollow 3 inches long by 1 inch broad. From this hollow a sinus tracked downwards to nearly the base of the lung in front. This was evidently a portion of the empyema now nearly closed. The walls of the cavity were lined by densely thickened pleura, which became less thick as the distance from the contracted cavity increased. No opening of the cavity into the lungs could now be found to explain the considerable quantity of pus which the patient coughed up during life. There were several spots, however, which looked as if they might have been the seat of such an opening now practically healed.

Lungs.—Both lungs were of small size, but the right lung was much smaller than the left. The *left* lung seemed in every way natural. The *right* lung was about a quarter smaller than the left. On cutting into its substance, the bronchi of the lower lobe were seen to be much dilated. The dilatation was cylindrical in type. The bronchi of the upper and middle lobes were natural. The lung tissue around the dilated bronchi was somewhat fibrosed, but throughout the rest of the lung it was so far as could be seen natural. The dilated bronchi were considerably inflamed and their walls somewhat irregular from superficial ulceration.

Heart and *pericardium* natural. A little atheroma of aorta.

Liver very fatty, otherwise no abnormality of abdominal contents.

Brain.—On opening cranium there was found to be purulent meningitis at the base of brain. This did not extend to the convexity. On opening the cerebellum, a small cavity of the size of a small marble was found in the lower part of the middle lobe, full of green pus. The pus had made its way through the roof of the fourth ventricle, and tracked through the fourth ventricle into posterior horn of lateral ventricle on the right side.

CASE 7. *Bronchiectasis (cylindrical,; 3 cerebral abscesses (2 on right side, 1 on left side).*—A youth, aged 17 years. Dr. Hector Mackenzie. Jan. 4th to 25th, 1901. B.H. Till five years ago in good health; then had tonsils and adenoids removed. Cough and shortness of breath and profuse, rather fœtid expectoration, said to date from about this time. (A vague history of a piece of bone having been swallowed, a particle of which may have been aspirated into the trachea. No evidence of this at necropsy.) Chest barrel-shaped. Marked clubbing of fingers and toes. Pulmonary note impaired everywhere. A few râles and rhonchi over both chests, front and back. Jan. 13th (12 days before death): "Epileptic" fit in morning lasting ten minutes; quite unconscious. Incontinence during fit. Jan. 16th: Headache and dimness of vision. Pupils dilated. Feels dizzy. (X ray examination was made and seemed to show an elongated shadow size of half-inch French nail moving with respiration.) Jan. 18th: Three slight epileptiform seizures. Some twitching on left side of face, also right arm and leg. No incontinence. Jan. 19th: Right arm and leg feel heavy. Reflexes normal. Right exaggerated, but slightly. Right ankle clonus. Jan. 20th: Drags right foot. Can scarcely walk by himself. Ankle clonus both feet. Jan. 21st: Whole of right side paretic. No optic neuritis. Twitching of left side of face. Jan. 22nd: Headache. Vomiting. Paresis of right arm and leg. Patellar and plantar reflexes on right side absent. Temperature subnormal. Jan. 23rd to 25th: Much vomiting the last three days of life. Drowsiness, deepening into coma. Headache. At end right pupil dilated, left contracted.

Post-mortem examination.—Body much wasted. Rigor mortis marked.

Pleuræ.—A few adhesions everywhere.

Lungs.—Bronchi throughout both lungs greatly dilated. Marked cylindrical bronchiectasis. This was most developed in the left lower lobe, but to a less extent in right upper and lower lobes. In the left upper lobe there was slight dilation of bronchi. The walls of the dilated bronchi were a good deal thicker than usual; they were also reddened and inflamed. They contained no offensive secretion. During life the expectoration had been very foul. The large bronchi were those chiefly involved. In a few cases the terminal ends of the "cylinders" under the pleura were somewhat larger than the rest of the dilated bronchus. The lung tissue around the dilated bronchi seemed singularly little altered. In places it was perhaps a little firmer than usual, but there was strikingly little, if any, fibrosis.

Heart and all other thoracic and abdominal contents natural.

Brain.—On opening the brain three superficial abscesses were found to be present. Each of these was of about the size of a Tangerine orange and contained greenish-looking pus. One of these was situated in upper portion of the left motor area, extending on either side of the fissure of Rolando. This explained weakness of the right arm and leg during life. A second abscess was found in the facial area on the right side, explaining the left facial paralysis. A third abscess was found in the right occipital lobe, explaining the lateral hemianopsia from which the patient had suffered, he being unable to see things to the left side.

CASE 8. *Bronchiectasis (cylindrical, diffuse); abscess of brain (right frontal lobe).*—A man, aged 21 years. B.H. Dr. Acland. March 5th to April 11th, 1902. Patient was admitted for the second time March 5th, 1902. He had been in hospital previously in July, 1901, but had to be discharged to the infirmary on account of the development of signs of suicidal mania. No history of tubercle in the family. On admission the whole of the left side was dull; a series of cavities to the base; much fœtid expectoration. There was hæmoptysis on several occasions. Towards the end (three days before death) patient became dull, and apathetic and wandering; he complained of no headache; there were no signs of paralysis and no optic neuritis. Pulse 84; temperature 97°–99° last three days. Vomiting twice on day before death.

Post-mortem examination (Dr. P. Horton-Smith).—Somewhat emaciated. Rigor mortis marked.

Pleuræ.—Right pleura was slightly adherent over the middle and anterior part of the lower lobe. Left pleura was adherent all over back and front.

Lungs.—Right: The bronchi in this lung were not at all dilated. The lower lobe showed scattered throughout it a good deal of recent broncho-pneumonia; except for this the lung was normal. *Left:* An extreme condition of bronchiectasis. The bronchi dilated throughout. The general appearance presented by a section of lung was that it was full of smallish sacculated cavities. On more careful inspection this was found to be an error. The bronchi were dilated in a cylindrical manner, many of them showing at their ends an enlarged terminal ampulla; the effect of section being to cut through the cylindrically dilated bronchi and to cause the appearance of numerous sacculated cavities. These cavities varied in size but were mostly about the size of a small marble. No normal lung tissue was found lying between these dilated bronchi, the lung tissue being thickened and fibrosed. The dilated tubes all had their walls greatly inflamed; their contents were fœtid, but not intensely so. A section of one of the enlarged dilated bronchi showed considerable thickening of the wall, with small celled inflammatory infiltration. The mucous membrane had quite disappeared.

Heart and pericardium normal.

All abdominal organs normal, except spleen which showed slight lardaceous change. It weighed 5½ ounces.

Brain.—A softening and discolouration were noticed over an area the size of a shilling, situated over middle of the right inferior frontal convolution. On cutting into the brain an abscess of the size of a Tangerine was found containing green pus. It was situated in the frontal lobe, its posterior limit not extending farther back than the anterior margin of the corpus striatum. Its situation in the frontal lobe explained the total absence of all localising symptoms. Brain otherwise natural.

CASE 9. *Bronchiectasis (saccular, one large cavity); abscess of brain (left parietal lobe).*—A man, aged 34 years, a labourer. Dr. Kingston Fowler. B.H. Sept. 19th to 30th, 1902. The patient was admitted with signs of fibrosis at the left apex. Three days after admission, on Sept. 21st, the patient found that he was paralysed on his right side, there being also loss of sensation. He denies any previous attack. (His mother, however, states he was invalided early in the year for paralysis which cleared up.) Sept. 21st: Patient found he could not raise his milk-cup to his lips. Paresis of right hand and arm, of right leg, and right side of face. Right eye does not shut so firmly as left. There is impaired tactile and pain sense in the right leg. Slightly impaired in right arm. Knee-jerks slightly increased. Plantar reflexes slightly increased. Eyes react to light and to accommodation. Pupils equal. No history of syphilis. No evidence of chancre. Speech normal. No convulsion or loss of consciousness. Sept. 22nd: Severe headache, right frontal region. Sept. 23rd: At 1 P.M. general convulsions and loss of consciousness. Sept. 24th: Bad night. Severe right frontal headache, with congestion of conjunctiva of right eye. Pupils equal and react to light. Pulse 60, soft; temperature normal. Knee-jerk diminished on right side. Sept. 25th: Convulsion from 2 to 3.15 A.M., general. Loss of consciousness. Pulse 70; temperature 102° F. Pupils react to light. Somewhat contracted. Mental reflex slow. Some twitching of right hand. Knee-jerks absent both sides. Speech almost intelligible. Sept. 26th: More sensible. Continuous twitching of right side of body. Fundi normal. Eye movements good. Coma. Rise of temperature at end.

Post-mortem examination.—Body well nourished. Rigor mortis marked.

Pleuræ.—Right, natural. Left, adherent all over both lobes and thickened at the apex.

Lungs.—Right: Engorged, otherwise natural. *Left:* The upper lobe was somewhat contracted and firmer than natural. On opening it several small rounded cavities were seen; these, however, appear to be parts of one large general cavity which occupied practically the whole of the upper lobe. It was found to be a dilatation of a large bronchus; its walls were smooth and in places contained cartilage. Nowhere could any evidence of tubercle be found. The material contained in the cavity was thick pink pus, not at all offensive. It would appear that this was a case of saccular bronchiectasis affecting the upper lobe only. There was no suggestion of gangrene. The process was of considerable standing. A section of the wall of this cavity was made. It was found to consist of unstriated muscle and some fibrous tissue, interspersed with small round cells. There were also found small pieces of cartilage embedded. The mucous membrane was for the most part gone, and the normal mucous membrane seemed to have been replaced by stratified cubical epithelium. Therefore practically certain a true bronchiectatic cavity. No sign of tubercle seen.

Heart and all other thoracic and abdominal structures normal. No trace of pus or tubercle.

Brain.—In the parietal lobe, on left side, half an inch under Rolandic area, was an abscess of some standing, about the size of a pigeon's egg. At one point it had burst below, and opened into the lateral ventricle which was filled with pus. The brain round about was œdematous.

CASE 10. *Bronchiectasis (cylindrical); abscess of brain (left frontal lobe).*—A youth, aged 18 years. Dr. Percy Kidd. B.H. Oct. 28th to Dec. 10th, 1902. There is a history of tubercle in mother's family. Patient had pleurisy on left side two years ago; since then bad cough and unable to work. Tubercle bacilli were looked for on seven occasions and never found. Hæmoptysis, 4 ounces, six months ago. He had been wasting. Fingers markedly clubbed. No night sweats. Basal signs on admission. Much expectoration. From Nov. 22nd (18 days before death) occasional vomiting, independent of food. Headache, frontal, both sides. Gradually increasing drowsiness. Dec. 4th: Discs normal. Pupils equal and normal. Reflexes normal. No fits or paralysis. Dec. 8th: Patient very drowsy. Condition much worse since Dec. 4th. Lies on back with eyes closed. Refuses food unless placed in his mouth. Takes no notice of surroundings. Slight temporary aphasia on two occasions (nurse). Answers questions correctly and sensibly. Vomited several times. Headache severe and now in parieto-occipital regions. Pupils large, equal, react normally. Knee jerks increased. No Babinski. Slight ankle clonus. No sign of

paralysis or any localising sign. Pulse 84. Temperature normal. Dec. 9th: Restless night. Took little food. Very drowsy this morning and inattentive. No retention of urine or incontinence. Pulse 80, irregular, feeble. Both left and right disc show early optic neuritis. Dec. 10th: Very drowsy and semi-conscious. Respiration 44; pulse 98. Incontinence of urine and fæces. Occasionally rubs head with hands as if painful, but does not complain of headache. Completely aphasic. Knee-jerks much increased. In afternoon comatose. The right arm distinctly weaker than left. Died 5.15 P.M.

Post-mortem examination.—Pleuræ.—Adherent all over both lungs back and front but nowhere much thickened. In axillary region about 1½ inches from the base of the right lower lobe was an area of about the size of a sixpence where the pleura had been destroyed by a patch of necrosis starting in the bronchus. Owing, however, to the layers of the pleura around being adherent, no pneumothorax had resulted.

Lungs.—On opening the lungs the bronchi, especially of both lower lobes, were found to be in typical condition of cylindrical bronchiectasis. Their walls were dilated and somewhat thickened, and towards the peripheral extremity showed a certain amount of ampullary enlargement. They contained a great deal of bloody mucus which was not offensive. In one or two spots little cavities were found connected with them, probably, in part at least, formed by destruction of lung tissue around dilated bronchi. In the right upper lobe the bronchi were also dilated, and here a small saccular cavity of the size of a large pea, and apparently a cylindrically dilated bronchus, was found. In the middle lobe of the right lung the bronchi were also cylindrically dilated to a marked degree. In the left upper lobe the bronchi were a little larger than natural, and near the apex a small bronchus could be traced to end in two small smooth-walled cavities, the size of biggish peas, and which seemed to be cylindrically dilated bronchi. The patient had bronchiectasis, for the most part cylindrical, and affecting chiefly both lower lobes and the right middle lobe. The other lobes were affected to a lesser degree, and in one or two places there was evidence of saccular dilatation of the bronchi. The lungs were a little emphysematous and showed practically no fibrosis.

Microscopical examination.—Small cavity, right upper lobe. The walls of this were bare of epithelium and composed simply of dense fibrous tissue; no cartilage seen; no giant cells; no caseation. By exclusion, a bronchiectatic cavity.

Dilated bronchus, base of left lower lobe.—1. Epithelium to some extent shed and replaced by cubical cells, but some columnar cells still there. 2. A thick layer of subendothelial inflammatory material. 3. Some increase of fibrous tissue, especially externally.

Heart, and all other thoracic and abdominal contents normal; except that there were one or two calcareous mediastinal glands. No trace of pus anywhere, or of tubercle.

Brain.—On taking out the brain a softened patch of greenish colour was found over the area of the upper part of the left frontal lobe. On cutting into the brain an abscess was found corresponding to this situation full of thick greenish pus and with a marked and obvious wall. It was of about the size of a small Tangerine orange but somewhat ovoid in shape. It had almost, but not quite, come to the surface externally, and had almost ruptured internally into the anterior cornu of the lateral ventricle. The abscess did not affect the inferior frontal or ascending frontal convolution; hence there had been no localising symptoms till very late during life. It was situated beneath the first and second frontal convolutions.

CASE 11. *Bronchiectasis (cylindrical); two small abscesses of lung; multiple cerebral abscesses.*—A man, aged 45 years; porter. Dr. Percy Kidd. B.H. June 24th to August 17th, 1903. No history of tubercle. Illness commenced January, 1903, with cough; foul-smelling sputa; and peculiar taste in the mouth. Signs of cavitation in front of left chest. Temperature normal on admission. It became high and remittent afterwards. He continued to bring up large quantities of foul sputa. Towards the end (about seven days) he became very drowsy and began to pass motions under him. Marked optic neuritis. No localising symptoms of cerebral abscess. Reflexes not increased.

Post-mortem examination.—Pleuræ.—Right: No adhesions. Except for an old depressed patch of cicatricial thickening near the apex the right pleura was normal. On cutting into the patch a small area of arrested tubercle of the size of a large pea was found, consisting of fibrous tissue with caseous material interspersed. The *left* pleura was closely adherent all over, back and front, and about ⅛ inch thick.

Lungs.—The *right* lung was somewhat engorged and showed distinct emphysema. The bronchi to lower lobe were engorged and a little dilated; those to the upper and middle lobes did not show much change beyond reddening; they contained, however, a little pultaceous matter, and were slightly dilated. The *left* lung was somewhat smaller than its fellow, of somewhat greenish colour, and much firmer than natural, distinctly fibrosed. The bronchus leading to the upper lobe was distinctly dilated in a cylindrical manner. After continuing its course for 2¼ inches it suddenly opened into a large cavity of the size of a Tangerine orange, containing very foul pultaceous material. This cavity seemed to have been formed by the breaking down of septic broncho-pneumonia. All the mucous membrane lining the bronchus ceased abruptly at the entrance of the cavity. The other bronchi in this lobe were a little dilated. The bronchi in the lower lobe were reddened and a little dilated, but not to any marked extent. Near the base of the lobe, however, there was a cavity of the size of a pigeon's egg containing decomposing purulent material. This, again, undoubtedly had its origin by septic destruction of lung tissue. Apart from the patch of arrested tubercle in the right apex there was no sign of tubercular disease anywhere.

Pericardium.—Old adhesive pericarditis, the two layers being universally adherent.

Heart.—Except for adherent pericarditis and slight hypertrophy, normal (11 ounces). Very slight granular disease of kidneys; and some calcareous spots in some of bronchial glands. Otherwise abdominal organs normal.

Brain.—On being cut into the brain showed between 20 and 30 small abscesses containing greenish pus. They varied in size from that of a hemp seed to that of a small bean, the majority being the size of a pea. They did not show any well-defined capsule. The abscesses were found throughout the brain and cerebellum, but most were superficial, though some were found in the central ganglia on either side and some in the centre of cerebellum. The great central mass of white matter forming the hemispheres did not show any. The abscesses noted were as follows:—Right hemisphere: One abscess in superior parietal lobule; one in superior frontal convolution; one in inferior frontal convolution (anterior edge); and three small ones in central ganglia, corpus striatum, and optic thalamus. Left hemisphere: One abscess in superior frontal convolution; one in second frontal convolution; three in superior parietal lobule; one in angular gyrus; one in corpus striatum; one in optic thalamus; and one in occipital lobe. Cerebellum: Four abscesses in right lateral lobe and two in left lateral lobe.

CASE 12. *Bronchiectasis (cylindrical and sacculated); abscess of brain (left lateral lobe of cerebellum).*—A man, aged 34 years, engineer's labourer. B.H. Dr. Habershon. Oct. 25th to Dec. 27th, 1903. Family history: Father died from bronchitis and asthma. Previous illness: Patient had pneumonia, right lower lobe, 1896. Tuberculosis of lung, 1898. The present illness dates from 1898. Marked emaciation. Expectoration profuse and offensive. Temperature in hospital normal. The thorax showed sinking in and dulness below right clavicle to second interspace in front, and dulness in right supraspinous fossa behind. At the right base, front and back, the typical signs of bronchiectasis. Tubercle bacilli were looked for on three occasions, and not found in sputa. Dec. 21st (six days before death): Patient vomited five times after cough. He complained of inability to stand straight. Appetite fair. Dec. 24th: Great headache, not specially localised. No occurrence of vomiting. Dec. 26th: Much worse. Slightly delirious. Repeated vomiting. Severe headache. No signs of paralysis. Pulse regular and good tension. Never comatose. Died from gradual failure of respiration.

Post-mortem examination.—Marked clubbing of fingers and toes.

Pleuræ.—Left, natural. *Right*, adherent everywhere, front and back.

Lungs.—Left: both lobes intensely engorged, somewhat collapsed towards the base. All parts of the lung float in water. *Right:* All the bronchi are greatly dilated and filled with purulent material. In the lower lobe two or three of these terminated in small cavities filled with very offensive purulent material and with an almost gangrenous wall. The upper lobe contained a large smooth-walled multilocular cavity, from which no communication with a bronchus could be traced. Portions of the lung sank in water. The bronchi of the lower lobe showed marked cylindrical bronchiectasis with ampullary dilatations. The lung tissue in this lobe was much fibrosed and the whole lung much shrunken. The cavities in the upper lobe seemed to be of very long standing and tuberculous; the bronchi leading to them were somewhat dilated, but no connexion between the bronchi and cavities could be made out. The bronchi of the middle lobe were slightly dilated. No marked abnormality of heart or any of the abdominal viscera. No amyloid changes. Mastoid cells, antra, and tympana normal.

Brain.—Cerebrum, natural. On superior surface of cerebellum little pus was seen; on section an abscess the size of an almond was found in the left lateral lobe.

CASE 13. *Bronchiectasis; multiple abscesses of brain.*—A man, aged 30 years. L.H. Mr. Eve. Dec. 28th to 30th, 1903. Patient had been in army in India, and was said to have had abscess of the liver while there. Otherwise no history of importance. Ten days before admission he was struck a blow on the right side of the head with a packing case. There was no loss of consciousness nor laceration of scalp. He complained of headache, as if head were being knocked with a hammer. There was no discharge from the ears. No vomiting at first. Five days before death he complained of weakness of the left arm. On admission he was irritable, lay curled up in bed semi-conscious. The pupils reacted to light. The optic discs were blurred. He vomited for the first time after admission into hospital. On the day after admission there were sudden dyspnœa and cyanosis, and he died.

Post-mortem examination.—Fibroid lung; multiple cerebral abscesses. External appearance: No trace of bruising over right parietal region either in scalp or bone. On opening the skull the roof of the tympanum appeared blameless; right and left middle ears healthy.

Brain.—Multiple abscesses situated: two in the upper aspect of right cerebral hemisphere in region of (1) ascending parietal lobe, (2) between the occipital and parietal lobes, each of the size of a pigeon's egg. Another situated at back of right temporo-sphenoidal lobe. In left hemisphere was a large abscess in occipital lobe towards its upper part and a second towards lower and hinder part of occipital lobe. Cerebellum: Right lobe practically destroyed by a large abscess of the size of a hen's egg. Left lobe healthy; pons healthy.

Kidneys.—16 ounces (two). Very dark in colour and apparently filled with blood. Capsule strips pretty readily, and except for the above there is no sign of disease. There was no trace of the previous existence of an abscess in the liver.

Lungs.—Both lungs were very adherent, the pleura being quite obliterated. The right lung showed no abnormality beyond an excess of pigment. The left lung showed throughout, and especially in its lower lobe, marked diffused cylindrical bronchiectasis.

Note.—There was in this case the history of a blow on the head, but nothing at the post-mortem examination to show any injury of soft tissues or bone.

CASE 14. *Bronchiectasis (cylindrical); abscess of brain (left parietal lobe).*—A man aged 34 years; butcher. Dr. Habershon. B.H. Feb. 17th to 28th, 1904. Family history unimportant. The patient had pneumonia, right side, three years previously. Much cough since June, 1903. There was much foul expectoration. The typical signs of bronchiectasis at right base. Signs of cerebral disease first appeared on Feb. 13th, 1904 (16 days before death), with feeling of "pins and needles" in right hand and fingers. Feb. 17th: The right arm and leg were paralysed, and there was hemianæsthesia of the right side. Motor agraphia, motor aphasia, and word-blindness were marked. The temperature now and throughout was about normal. Feb. 18th: No anæsthesia; paresis much less. Feb. 19th: Patient had a fit. Clonic contractions of right side of face. Aphasia became more marked. More paralysis of right arm and right face. Feb. 20th: Vomiting and headache. Feb. 21st: Vomited once. Speech more affected. Conscious but apprehension is slow. Feb. 22nd: Right arm and right leg totally paralysed. Haziness on inner side of optic discs. Temperature normal. Pulse 52. Feb. 23rd: Violent vomiting. Temperature 102°. Gradually increasing drowsiness. Coma.

Post-mortem examination.—The body was fairly well nourished. Rigor mortis marked.

Pleuræ.—The *right pleura* was adherent over the whole of the right lower lobe, but not thickened to any extent; there were a few stringy adhesions over the right middle lobe. The *left pleura* showed a few stringy adhesions over its anterior surface.

Lungs.—Right: The bronchi in right lower lobe markedly dilated in

cylindrical manner, the walls much engorged. The lung tissue around the dilated bronchi in this lobe was somewhat firmer than normal; slight fibrosis. The middle lobe was not anatomically differentiated from the upper lobe; that portion of the upper lobe which corresponded to what is normally the middle lobe showed slight bronchiectasis in its lower and middle part. The right lower lobe was practically normal. The *left* lung showed practically no bronchiectasis. In the right upper lobe, and in both lobes of the left lung, a few scattered patches of broncho-pneumonia (septic) were found, one or two of which were commencing to break down into small gangrenous cavities.

The heart was natural, except that its walls were rather flabby (12 ounces). All abdominal viscera normal.

Brain.—The arteries at the base and convexity were carefully examined and found to be perfectly normal; no sign of embolism or thrombosis. On examining the brain the left side was found to bulge on its lateral aspect, and on palpation some fluctuation was obtained, the consistency on the two sides being very different. On incising the brain an abscess cavity filled with greenish pus was found in the left hemisphere. It was situated close to the cortex and thence extended inwards. It occupied the regions of the ascending parietal, supramarginal, and angular convolutions, and by its situation cut off (or pushed aside) the fibres coming from these convolutions and from occipital lobe to the internal capsule. Broca's convolution was cut into but found normal. The first temporo-sphenoidal convolution was also normal, as also was the rest of the brain.

CASE 15. *Emphysema and bronchitis; healed tuberculosis, right apex; multiple cerebral abscesses.*—A man, aged 42 years. Dr. Fowler. B.H. May 23rd to Sept. 9th, 1902. Has suffered from bronchitis as long as he can remember. Admitted May 23rd with high temperature and much bronchitis. Chest very emphysematous. The temperature subsided and bronchitis improved. He was given compressed air baths and improved somewhat during his stay in hospital in early period. August 6th: Cough became troublesome and his breathing short. The temperature rose to 100° F., and examination of chest showed more bronchitis. August 30th: Temperature rose 103·4°. His breathing was a little easier. Still much general bronchitis. Dyspnœa spasmodic and was relieved by chloroform inhalations. The signs improved, but his temperature remained 101° without remission. Sept. 3rd (seven days before death): Headache. Sept. 4th: Vomiting. Sept. 5th: Some slowness of mental reflex and some drowsiness were noticed. Sept. 6th: He became more drowsy and stupid. Knee-jerks brisk. Temperature fell to 99°. The vomiting persisted, but patient could not state whether it succeeded cough. Sept. 7th: He became more drowsy and listless, and passed urine once involuntarily. Vomiting and headache persisted in spite of sedative treatment. Sept. 8th: *Fundi:* Right disc choked, with engorgement and tortuosity of the veins. Left disc doubtfully blurred. Proptosis of right eye was noticed. Knee-jerks brisk, especially on right side. There was sustained ankle clonus on the right side; on the left side there was some clonus at ankle but not sustained. Babinski's sign marked. Superficial reflexes extremely brisk (plantar); arm reflexes absent. On the evening of the 8th drowsiness ceased and he became restless; this restlessness increased and at 6 A.M. (Sept. 9th) he had a convulsive seizure, beginning on left side and becoming general. He became comatose and had fits at intervals. He died at 9 A.M. on the 9th. The pulse, which had been 100 to 120, became slow and irregular (68 to 72) from Sept. 3rd to the 9th. Temperature 101° on Sept. 3rd, gradually sinking to subnormal on the 9th.

Post-mortem examination.—Well-nourished man. "Barrel" shaped chest.

Pleuræ natural, except at right apex.

Lungs.—Pleura over apex of right upper lobe thickened and adherent to chest wall. At the extreme apex of right lung a contracted scar of healed pulmonary tuberculosis. The rest of the lung was normal throughout. *Left lung* emphysematous, especially anteriorly.

Heart normal (9½ ounces). All other thoracic and abdominal contents normal, except that one kidney had a small cyst in its cortex. No trace of pus anywhere.

Brain showed multiple abscesses filled with greenish pus. Right hemisphere: Frontal lobe, one superficial abscess, size of a pea; two deep abscesses, size of hazel nuts. Occipital lobe, one deep abscess, size of walnut. Temporo-sphenoidal lobe, one deep abscess, size of walnut. Left hemisphere: Parietal lobe, one deep abscess, size of a walnut. Frontal lobe, one deep abscess, size of a walnut. Cerebellum, one abscess in right lobe, size of a wainut. One abscess above right crus cerebri looking older than the other (about size of a walnut), with thickened capsule and containing brownish pus. Careful search was made but no primary focus found. No trace of pus anywhere but in the brain.

CASE 16. *Post-dysenteric abscess of liver; subdiaphragmatic abscess; abscess of lower lobe of the right lung; three small abscesses of the left occipital lobe.*—A man, aged 29 years; painter. Dr. Percy Kidd. B.H. July 23rd to Dec. 19th, 1898. Had dysentery in India in 1893. In October, 1897, had pains at first all over the right side, especially about right hypochondrium. Worked till January, 1898. During May, June, and July, 1898, constant pain in front of right chest, shooting to right shoulder. During last 15 months lost 3 stones in weight. No history of sweats. Perihepatic abscess opened July 28th, 1898 (Mr. Godlee), and again on August 8th (Mr. Pollard). Oct. 10th: Mr. Godlee removed a piece of rib. Nov. 6th: Coughed up pus. Nov. 21st: Further operation. Subdiaphragmatic abscess and abscess in lung opened; these communicated with one another. Patient was much relieved by this operation. Dec. 11th (nine days before death): Frontal and parietal headache, acute. Dec. 12th: Unable to carry on conversation. No delirium. Seemed to understand perfectly what was said to him. Dec. 13th: Headache disappeared. Difficulty in talking still more marked. Paresis of right arm, body, and leg. Dec. 15th: Considerable loss of sensation in right arm and leg. When asked his name cannot say it. If asked "Is it Faithfull?" (his name), says sometimes "Yes," sometimes "Don't know." Knee-jerk almost lost on right side; normal on left side. Plantar reflex less on right than on left side. No interference in movements of eyeballs. Dec. 17th: Pulse 96, soft, regular. Respiration 24, regular. Right pupil larger than left. No signs of optic neuritis. Getting more dull and drowsy. Paresis of right side of face more marked. No incontinence. He hears well, and slowly comprehends what is said to him. When asked to repeat several words, "hat, mother, George, sun, bacon, water," the only one he repeated fairly distinctly was "water." For the others he shook his head or said "Yes" or "No," or again repeated "water." Spontaneously he says nothing. Perception of light appears good. When asked to point out common objects yawns and groans. Reading aloud and writing from dictation quite out of question. Dec. 18th: Temperature 97°. Pulse 90; almost completely comatose. Right hemiplegia complete. Right knee-jerk slightly stronger than left. Marked ankle clonus right side. No incontinence. Dec. 19th: Coma complete. Conjunctivæ insensitive. Pupils equal and contracted. Incontinence. Pulse 114, small, regular. No Cheyne-Stokes breathing. Slight twitching of left leg. Temperature normal; 99° last four days.

Post-mortem examination.—Rigor mortis marked. Much wasted. On the outside of the chest are two operation openings: the first over the eighth rib in anterior axillary line, the second over the eighth rib higher up in the posterior axillary line. The first opening leads into a cavity in the liver, the second into a subdiaphragmatic cavity. The liver, lungs, diaphragm, and pleuræ were removed together. The pleura over the right upper lung was entirely healthy, and over the lower lobe in front also healthy. Basally in the anterior portion there were a few delicate adhesions. Over the posterior part of the base and over the postero-external portion of the lower lobe there were dense pleuritic adhesions. A postero-external section was made through the operation sinuses, through the right lobe of the liver and through the right lung, and disclosed the following conditions. The first operation opening was found to lead into an old abscess cavity in the posterior and upper part of the right lobe of the liver. The cavity was clearly much shrunken, had extremely fibrous walls, and in the lower part was contracted into a kind of sinus. The second operation opening led into a sub-diaphragmatic abscess cavity with greatly fibrosed and thickened walls of about the size of a small orange. This had two communications (*a*) downwards and of considerable width, leading by a very short course into the above-mentioned abscess in the liver, and (*b*) one narrower and of greater length passing upwards through the diaphragm which was greatly thickened, and of almost cartilaginous texture, into a large abscess cavity in the posterior and basal portion of the right lower lobe. The cavity in the lung was of the size of a good-sized orange and had somewhat fibrous and slightly trabeculated walls. The lung tissue basally in the neighbourhood of the abscess cavity was somewhat pigmented and fibrous and seemed to be in a state of chronic indurative pneumonia. The remaining portion of the right lung and the left lung were somewhat engorged and extremely œdematous. Left pleura healthy. (The remainder of the liver was perfectly healthy, with the exception of a small portion of tissue in the neighbourhood of the abscess which seemed engorged and softened.)

Alimentary canal.—A few small shallow ulcers in descending colon; otherwise healthy.

Heart normal. All other abdominal viscera, except liver, natural.

Brain.—On opening the cranium the veins over the left occipital and parietal areas are more distended than on right side. The occipital and posterior parietal convolutions are also markedly flattened out and the sulci in a great measure obliterated. On making a horizontal section through the left cerebral hemisphere three small abscesses communicating with one another are found, containing thick greenish pus. They lie in the substance of the posterior part of the occipital lobe, a short distance below the surface. The brain around is "semi-purulent," soft, and diffluent. This softening extends forwards to the posterior limit of internal capsule and undermines the lenticular nucleus. The ventricles are uninvaded. The rest of the brain substance and meninges appear normal. There is no invasion of the speech centre.

CASE 17. *Empyema; abscess of brain (left occipital lobe).*—A man, aged 19 years; potter. Dr. Symes-Thompson. Dec. 4th, 1882, to March 30th, 1883. Patient was admitted with left pleural effusion. Tapped Dec. 18th, 1882, 1½ pints of pus removed. Part of fifth rib resected. After this patient progressed well, and empyema cavity closed up greatly. About one week before death the discharge from what was now hardly more than a sinus almost completely stopped. The patient had pyrexia, headache, intolerance of light, and soon afterwards vomiting, but no paralysis. Death in coma. 30 minutes after death, temperature in rectum 108·3°.

Post-mortem examination.—Height 5 feet 7 inches. Well nourished. Two inches outside left nipple line is seen an oval opening, over fifth rib, part of which has been resected. The opening communicates with a sinus about six inches in length, of the diameter of a goose quill, running backwards and upwards. On opening the sinus it was seen to lead into a small narrow space in pleural cavity, but was shut off from general cavity of the pleura and from the lung by firm connective tissue. The walls of the sinus formed of fleshy, granulating tissue; no pus in sinus. Pericardium adherent to both pleuræ. Left pleura adherent throughout firmly; right pleura free except for pericardial adhesion.

Heart, 9½ ounces; left ventricle hypertrophied. Musculi papillares shortened and unduly thick. Mitral valve flaps thickened. Edges irregular. On anterior flap a pedunculated, firm excrescence as large as a small hempseed. Endocardium of left ventricle opaque. Aortic valves thickened at their bases. Small patch of atheroma in aorta.

Larynx, trachea, bronchi, and bronchial glands normal.

Lungs.—Right base slightly congested, otherwise natural. Left lower half collapsed and bound down by firm adhesions. Fibroid bands are seen in the lung, communicating with septa running in from thickened pleura. All abdominal organs quite normal.

Brain.—Dura mater and sinuses natural. On removing dura mater pus is seen to be effused under the pia mater at the base in a thin layer only. On removing the brain, pus escaped from the lower part of the left occipital lobe. There were small meningeal extravasations over the left ascending and right superior parietal convolutions. The vessels at the base and in Sylvian fissure healthy. At the base pus is seen welling up around the corpora albicantia, apparently from third ventricle. Left occipital lobe was much flattened and very soft. On opening the left ventricle an abscess cavity as large as a greengage was found in occipital lobe communicating with the lateral ventricle. The middle and posterior horns contained a little of the greenish glairy pus such as had before escaped; the anterior horn contained a little thin purulent fluid. The abscess cavity only contained a small amount of pus, most of it having escaped on removing the brain. The walls of the left lateral ventricle were of a deep red colour and much softened, except at the extremity of the posterior horn, where the brain tissue had an ochreous colour. The surrounding occipital and parietal convolutions were soft and rather more grey in colour than the corresponding parts on the right side. The right lateral ventricle appeared normal, contained no fluid. The third ventricle contained a little thin pus. The fourth ventricle contained no pus, but its walls were of reddish colour and softened. A thin layer of pus was seen under the pia mater on the superior surface of the cerebellum and on the anterior surface of the

pons Varolii and medulla. The cerebral ganglia, pons, and medulla appeared healthy on section.

CASE 18. *Tubercular excavation of lung; empyema; abscess of brain (left lenticular nucleus and centrum ovale).*—A woman, aged 33 years. Dr. Mitchell Bruce. B. H. May 6th to 23rd, 1893. Family history unimportant. Patient had left-sided pleurisy 2½ years previously. Since then ill, and coughing up large quantities of purulent matter. Two months ago the empyema burst through left breast. She was operated on, on admission to Brompton, on May 12th, and a portion of the eighth left rib, behind posterior axillary fold, was excised. The very day after operation much depressed and melancholic. (10 days before death.) May 16th: Temperature normal. Discharge smaller in quantity and slightly offensive Still melancholic. May 20th: Temperature 100·4°. Mental condition unchanged. May 22nd: Temperature rising steadily and is now 103·2°. During night coughed up much thick muco-purulent material. May 23rd: Delirious during night. Unconscious this morning. Right arm and leg quite flaccid. On pricking with a pin the left leg is drawn up, the right is not. Temperature 100·6°. The pulse was strong and full.

Post-mortem examination.—The body was much emaciated. Rigor mortis present everywhere. On the front of the left side of the chest there were the marks of four fistulous openings—two healed, one partly healed, and one open. Just below the left scapular angle there was an artificial opening, the margins of which were in a somewhat sloughy condition. The left pectoralis major muscle was greatly atrophied. Corresponding to the open fistula mentioned above there was some thickening of the periosteum, and the third rib cartilage was bare in a part of its length but not diseased.

Pleuræ.—The *left* pleural cavity was filled with tough adhesions at the upper part down to the second rib and costal cartilage. Below this was an empty cavity, extending down to the eighth rib behind, a portion of which had been removed. Below this there were again tough adhesions. The *right* pleura was normal. There were firm pleuro-pericardial adhesions on the left, none on the right side. The pericardium was normal. Heart normal (8 ounces).

Lungs.—The *right* lung was congested, but otherwise normal. The *left* lung was greatly collapsed below the middle of the upper lobe. The greater part of the upper lobe was occupied by a cavity having smooth walls. In its neighbourhood there was a little old fibroid tubercle. A smaller cavity was found below this. In the lower lobe there was a little fibroid tubercle; no cavity. All abdominal organs normal, except that the spleen showed slight amyloid change.

Brain.—On removing the brain a great quantity of creamy pus was found beneath the pia mater over the pons and medulla covering the whole of the circle of Willis and running into the Sylvian fissure of each side. It seemed to proceed from near the foramen of Majendie. On incising the brain an abscess was found in the anterior part of the left lenticular nucleus and neighbouring white matter. The abscess contained much discoloured pus and was surrounded by hæmorrhagic and inflamed brain substance. It had burst into the third ventricle, thence into the fourth, and reached the surface of the brain at the foramen of Majendie as described above. The right side of the brain was normal. There was but little meningitis. No tubercle of the brain was found.

CASE 19. *Empyema (both sides); abscess (right temporo-sphenoidal lobe).*—A man, aged 30 years. L.H. Mr. Barnard. The patient, a previously healthy man, had empyema first on the right side, and had resection of rib performed on March 30th, 1898. On May 14th empyema of left side had developed, and resection of rib was performed. Both sides were closing up satisfactorily when on June 10th he complained of severe headache and vomiting and drowsiness. Very rapidly paresis of the left side of face, left arm, and left leg developed. On June 14th he could understand what was said to him if repeated several times. Incontinence of urine and fæces. Vomiting and much frontal headache. Anæsthesia of left cornea. Left pupil slightly dilated; reacts to light. June 15th: Cerebral abscess right temporo-sphenoidal lobe was diagnosed. He was trephined; an abscess of the size of a walnut was found and drained. Patient did well for a week. The temperature then rose to 106° and he died. *No post-mortem examination was allowed.*

CASE 20. *Bronchiectasis (cylindrical); extensive thrombosis of veins of neck.*—A girl, aged 16 years. Dr. Hector Mackenzie. B.H. Nov. 25th, 1903, to Feb. 12th, 1904. Patient had measles when three years of age and had coughed much ever since. Large quantities of sputa, occasionally foul. Dyspnœa extreme. Temperature, 99° on admission, in early January, 1904, rose to 102° in morning. Much clubbing of fingers and toes. The physical signs were those of much bronchitis with infiltration of the lower lobe. On Jan. 21st œdema set in, beginning in the face and spreading to body and legs.

Post-mortem examination.—Pleuræ.—Left pleura adherent all over the back. In front there were a few adhesions limiting the upper two-thirds of the upper lobe over which a few ounces of serous fluid were found. *Right pleura* adherent all over back and over upper part of the lung in front; over neither lung was the pleura much thickened.

Lungs.—Right: The upper lobe contained at its apex a cavity of the size of a Tangerine orange; it was of some standing, and though there was still some curdy material lining, the fibrous walls were beginning to form. A few grey tubercles were scattered in the remainder of this lobe and in the lower lobe. *Left:* This showed a few scattered, deeply pigmented grey tubercles, but there was no other sign of tuberculous disease. On examining the bronchi very definite cylindrical bronchiectasis was found affecting the right and left lower lobes, and also the right upper lobe. It was most marked in the left lower lobe. The dilatation of the bronchi was very distinct, though nowhere extreme.

Heart, 7 ounces, natural. Abdominal organs, no abnormality.

Mediastinal glands.—The anterior and posterior groups were natural. The superior mediastinal group of glands was markedly enlarged and formed a definite mass in the superior mediastinum. One contained a fibro-caseous patch of the size of a pea. It is possible that the glands had by pressure on the veins produced thrombosis. In an adjoining gland a small caseous patch was also found. The right internal jugular vein from the skull to its junction with subclavian was filled with firm, ante-mortem clot of some standing. The right axillary vein and probably the subclavian were natural. The left jugular vein in the neck and also the left subclavian, axillary, brachial, median-basilic, and median cephalic veins were all filled with ante-mortem clot, but of more recent date than that on the right side. Other veins natural, including those in the legs, in spite of œdema.

Brain.—Quite normal. No ante-mortem clot in any of sinuses of dura mater.

HISTORICAL RECORD AND LITERATURE.

The occurrence of abscess of the brain, secondary to disease of the lung, without general pyæmia, with no foci of suppuration anywhere except in the brain, is a clinical entity which has only been fully recognised comparatively recently. "These cases of secondary abscess are among the most obscure, whether we regard their insidious origin or the primary disease which give rise to them" (Gull). In the earlier records the two conditions, pulmonary disease and cerebral abscess, are put down side by side as coincidences, without any suggestion of connexion between the two.

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THE TEMPERATURE AS A GUIDE TO THE TREATMENT AND PROGNOSIS OF PHTHISIS.

BY S. VERE PEARSON, M.B. CANTAB., M.R.C.P. LOND.,
RESIDENT PHYSICIAN, MUNDESLEY SANATORIUM.

I HAVE been struck in the past few years by the tendency there is to place too implicit faith in the effects of change of air, high altitude, and sea voyages in the treatment of phthisis, and to ignore a careful study of the symptoms. No doubt the tendency on the part of the sanatorium doctor is to over-emphasise the importance of rules based upon a study of symptoms, and perhaps to expect too much from enforcing an accurate regulation of the details of living under a hygienic *régime*, or at all events to desire to adopt this method of combating the disease in all cases and under every circumstance. But I feel sure it is more needful to draw attention to an opposite failing amongst those who have had no special experience in the modern methods of treating phthisis. If a more thorough understanding of the value of a careful study of the symptoms of this disease, together with a greater precision in directing the management of the consumptive, were practised, the task of the sanatorium doctor would be much lightened, both in his curative efforts and in those directed towards a better education of the public. From personal experience in my own case I know the effects of high altitude or other climatic

influences are not to be discredited in the treatment of phthisis. But I have become fully convinced that, while they have their place, this must be a very subsidiary one in the treatment of the great majority of consumptives, especially when activity of the disease first manifests itself by producing symptoms and leads to the discovery of the malady. There is no reason why treatment, based upon thorough and constant study of the symptoms, carefully supervised and precisely regulated, should not be combined with whatever advantages there are in the climatic influences of distant, much-vaunted places. But after visiting several of the more important health resorts renowned as attractive to the consumptive in Switzerland, North America, and the Riviera, I feel constrained to say that at a great many of these places, from one cause or another, often from causes over which the medical man has no control, too much is left to the climatic influences alone in the majority of cases, and much too little is done in the direction of that close and precise supervision and regulation of detail which is advocated by the doctors of the sanatoriums in Great Britain.

Importance of Close Study of Symptoms.

The modern treatment of consumption is based upon a knowledge of the powers of recovery naturally possessed by the body when placed under the best hygienic conditions, and requires for its maximum success a close study on the part of the physician of the symptoms of the disease and the recuperative powers of each individual patient. Amongst the symptoms the temperature is pre-eminently important. Since the year 1893, when Dr. J. Kingston Fowler first drew particular attention to the importance of studying the various types of temperature met with in pulmonary tuberculosis, much attention has been paid to the temperature. More recently the writings of Dr. F. W. Burton-Fanning and Dr. K. Turban, not to mention the teachings of Dr. Otto Walther and his followers, have to some extent led medical men to realise the importance of a careful study of the temperature readings as a guide to treatment. It is recognised that (1) with a miliary tuberculosis it is usual to find a type of temperature continuous or inverse; (2) with an acute caseating tuberculosis a remittent or markedly intermittent type is found; (3) with a chronic fibroid tuberculosis constantly normal or subnormal is the rule; (4) while with a chronic fibro-caseous either a normal, subnormal, or a raised temperature is found, according to the stage and state of the disease.

In this paper my remarks about temperature as a guide to prognosis and treatment will refer more especially to cases of chronic fibro-caseous pulmonary tuberculosis.

Method of Taking Temperature.

In the first place, the choice of the method of taking the temperature calls for consideration. There can be no question that the *rectal temperature* is the most satisfactory. The alternative methods of mouth or urine temperatures or axillary readings are not so good. I have frequently found that the reading in the axilla or groin, even after leaving the thermometer in position for ten minutes or a quarter of an hour, has been considerably below 98·4° F. (36·9° C.), while the rectal reading at the same time has been at least 100° (37·8° C.). Mouth readings may be employed where any local condition contra-indicates the use of rectal temperatures. But, as Dr. Burton-Fanning has pointed out, if the oral temperature is used the thermometer must be kept in the mouth, with the mouth shut, for at least a quarter of an hour to get anything like reliable results. I believe in taking rectal temperatures whenever possible, however, for this method has the following advantages.

1. *The actual temperature* of the body is recorded. There can be no question that the rectal reading often gives a very different idea of the state of affairs from any other method of taking the temperature. For example, if the oral temperature is taken by anyone undergoing the open-air treatment during cold wintry weather a true record of the body temperature will seldom be obtained, even though he breathe through his nose.

2. *The exercise temperature*—i.e., the temperature taken immediately after some exercise—is often only properly estimated by this method. The oral temperature after exercise is frequently but little raised, while the rectal reading, taken at the same time, will show considerable elevation. Again, in some cases the temperature drops quickly after exercise, and if the patient has been breathing through the mouth the thermometer in the mouth will never record the height to which the temperature has been raised by the exercise.

3. *It indicates onset of relapse or complication.* Rectal temperatures often indicate the onset of (*a*) relapse more readily and at an earlier date than any other method of recording the temperature; and (*b*) the same may be said of the onset of a complication. I have known, for example, a patient who for a few days had the ambiguous warnings of the onset of meningitis, and no indication present of any complication in so far as oral temperatures were concerned. For a good many days oral readings showed no indication of any change from the previous satisfactory temperature readings, while rectal readings demonstrated during this period a very definite rise. It is of particular importance in respect to the early recognition of a relapse to remember that not infrequently the physical signs of the extension of the disease in the chest are only to be found after the symptoms of the set-back have subsided. Hence anything which helps towards an early recognition of a tendency to relapse is of the utmost importance in treatment, because with skill this inclination towards renewed activity or extension of the disease can be checked, and thereby often, I feel sure, a definite set-back warded off.

4. *Often very slight disturbances* of the body temperature are recorded only when rectal readings are taken.

The method of taking the temperature by urinating on to the thermometer is second only to the rectal method. It is usual for the temperature taken in the urine to be regularly about half a degree (F.) below the rectal readings, and it is fairly reliable. This method, therefore, is to be preferred under some circumstances, but it is not so generally reliable as the rectal method. Æsthetic reasons can easily be overcome in this matter of the method of taking the temperature. Most patients, as a matter of convenience, seem to prefer taking the temperature for from two to five minutes in the rectum, or by means of urinating on to the thermometer, to having to hold the thermometer in the mouth for 20 minutes.

Times of Taking Temperature.

The next point for consideration is the choice of the time for taking the temperature. For the thorough treatment of phthisis one must have frequent readings of the temperature. It is of no use, or rather it is of but little use, to take the temperature once a day—for example, in the evening. The height of the morning temperature should be known as well as the height of the evening temperature. It is important also to know the type of temperature curve. In choosing the times when the temperature should be taken and the conditions several points arise. In the first place, the reading first thing in the morning, and that some time about 6 P.M., are of special importance. In the second place, it is, in my estimation, preferable to take rest temperatures—i.e., to take the temperature when the patient has been at rest for a little time previously. The times I choose at the Mundesley Sanatorium are 7.45 A.M., 12 noon, 6.45 P.M., and 9.45 P.M. These temperatures are all taken after rest, with the exception of the mid-day one in the case of patients on exercise, when it is taken immediately after the morning exercise. Some authorities prefer to take two exercise temperatures in place of one, but my experience leads me to believe that the rest temperatures are the important ones. My rule is for patients to take their temperatures upon waking, before they get out of bed in the morning. I emphasise "before getting out of bed" because in many cases the mere effort of getting up, assuming the erect position, and washing sends the temperature up a few points. If, however, the patient is liable to wake early and begins, perhaps at 5 o'clock, to get anxious as to what his temperature is, I then tell him to take his temperature at a specified time—for example, 7.30 A.M. Otherwise he may be allowed to take his temperature upon waking. The second temperature in the day is taken immediately after the morning walk, or, if the patient is taking no exercise, it is taken at noon. I consider it as well to have one exercise temperature charted in the 24 hours. The third temperature is taken at the end of the evening rest hour, every patient being required to rest for one hour before the evening meal. The fourth temperature is taken after the patient has been in bed from 10 to 20 minutes. The interval between getting into bed and taking the temperature should always be the same. This is of

importance, because while the patient is lying quietly in bed the temperature may be dropping several points. The length of the interval depends upon the habit of the patient in respect to how soon he falls to sleep after going to bed. It is important to have all these four observations at the beginning of the treatment at all events.

Interpretation of Temperature Readings.

Now as to the interpretation of the readings, my remarks will be based upon the rectal readings taken four times a day at the above suggested times. In the first place, it is most important to emphasise the fact that very minute variations from what may be considered normal readings in any individual case may be of the utmost importance in the treatment of consumption. Secondly, that the readings of the "rest" temperature in health are lower than is usually thought to be the case. Especially is it of importance to emphasise the fact that in health the reading should be 98° (36·7° C.), or lower the first thing in the morning. There seems to be an all too widespread impression that the rectal temperature may be raised a degree above 98·4° (36·9° C.) without being of any serious pathological significance. If this is believed dire mistakes may be made in the treatment of consumption, for the pivot of successful treatment is to keep the patient at complete rest whenever any fever is present. Slight fever means activity of the disease. Activity of the disease indicates as much rest of the lungs as possible. If we have activity of a tuberculous lesion in any other part of the body—for example, the knee-joint—we rest the part until the activity has subsided. The lungs cannot be rested absolutely, but when active disease is present in them they should be rested as much as possible, and this necessitates complete rest in bed as a rule. The surest sign of activity about the lung lesion is the presence of some fever. Exactly what constitutes "some fever" is difficult to define, but the general rule which I adopt is to consider activity to be present when the temperature readings are above 98° (36·7° C.) in the morning or 99·4° (37·45° C.) in the evening, unless I have good grounds for believing the contrary. If both readings are above these points naturally more care must be taken than when only one is altered. If one is altered more importance must be attached to the elevation of the morning temperature than to an elevation of the evening temperature. The heightening of the evening temperature may be the indication of the slight remains of activity, but not so a raised morning temperature as a rule. Many patients with temperature readings so near the normal as 98° (36·7° C.) in the morning and 99·3° (37·4° C.) in the evening will not make the best progress, or will sometimes make no good progress at all unless they be rested. The completeness of the rest must depend upon the nature of the case as judged by the temperature readings and other symptoms. If the prostration of the patient be great, and the temperature readings high with little tendency to improve, the rest should be complete, the patient not even being allowed to bath himself or walk to the closet. In fact, in some cases, as has recently been pointed out by Dr. A. Latham and Dr. M. S. Paterson, the quickest way to bring about a drop in the temperature is to treat the patient as if he were suffering from typhoid fever.

In treating consumption too much attention must not be paid to an isolated temperature reading. It is better to take a broad view of the readings for the previous few days in prescribing what a patient can or can not do. If an elevation of a few points in the temperature occur suddenly, and at the same time some other symptom of an adverse nature arise, then notice should be taken of the combination; if the elevation has no other adverse symptom accompanying it, then it can very often be disregarded. Of course, in any case a sudden high rise in temperature should always call for immediate attention. In relying upon the temperature readings it must not be lost sight of that, however much emphasis is laid upon their importance, the condition of the case must not be judged by them alone; also, that any rule of procedure for the treatment of patients cannot be made too hard and fast. In practice, however, I have found that the rules I formulate here need have but rare exceptions. In conjunction with the temperature the most important factors to which attention should be paid are: first, the aspect of the patient; secondly, the body weight; and thirdly, the pulse.

Should the Patient Take His Own Temperature?

I believe in teaching the patient how to take and chart his own temperature because then (1) it is easily possible to have all the necessary observations; and (2) it is possible to make him capable of regulating his future doings scientifically. The weighing machine and thermometer intelligently used by a patient who has been well trained will often enable him to ward off relapse and to keep perfectly well. I do not approve of a patient, after he has got his disease arrested and left a sanatorium, taking his temperature regularly, nor of his being too reliant upon his own understandings of treatment. He must for some time keep in touch with a medical man. But the patient is sometimes unable to do this, or occasionally, I have found, unwilling to do so, because the only medical man available for him to consult seems to him to know less about the treatment of the disease from which he is suffering than he does himself. This is something of a reproach, though it is in the nature of the case that the patient should, perhaps by bitter experience, learn some details peculiar to his own case which it is difficult for his medical practitioner to pick up.

What is the Normal Temperature?

I have tried to bring out that there is no such thing as a normal temperature. There is an average temperature of health at a given time of day under given circumstances. This does not always seem to be sufficiently noticed, even by those who have expert knowledge of consumption, for in more than one recent publication dealing with the treatment of phthisis no details, or incomplete details, are given as to the exact time, method, and circumstance of the taking of the temperature. Precision in these matters is of the utmost importance in judging how to treat the patient, therefore their omission under such circumstances is to be regretted.

Since the early morning temperature of one patient may be 97° (36·1° C.) when he is in health and has perfectly quiescent disease, and that of another under similar circumstances 98° (36·7° C.), the proper temperature for any individual patient can only be discovered by experience. In this connexion it is well to mention that there is a tendency for the early morning temperature of the phthisical individual with quiescent or healed disease to be lower than that of a perfectly healthy person. Furthermore, I have upon occasion seen the rectal temperature take a lower position by several points after recovery from a relapse as compared with the temperature which was the rule after recovery from the primary trouble. Occasionally it is the morning temperature alone which is thus lower than before, then the daily excursion between the highest and lowest readings is increased, while in other cases all the "rest" temperatures are lower. This is sometimes the case when the period of arrest has extended over years, and is, I think, especially liable to occur if the fresh extension of the disease is either wide in area or intense in degree. The converse also occurs; that is, after return to health has been established for a long period the temperature readings become less subnormal, or show a smaller excursion, or alter in both these respects. But it is not usual, in my experience, to see these latter changes occur quickly in the course of a few weeks or even months. Hence I am not prepared to say to what extent they take place, because when a patient has made a good cure and keeps permanently well there is much more chance of losing sight of him after a few years, and in any case he will not bother himself with his temperature readings.

The Temperature Curve.

While there is a normal temperature for health in any given individual, it must be remembered that this varies at different hours of the day, thus giving a normal curve of temperature. In health the lowest temperature in the 24 hours occurs between the hours of 1 A.M. and 4 A.M., while the highest daily reading occurs between the hours of 3 P.M. and 8 P.M. In the inverse type of temperature this normal curve is reversed, the temperature being highest in the early hours of the morning and lowest in the evening. But between these two extremes there are other types of curve, each of which has a special significance. Dr. N. D. Bardswell informs me that he collected some years ago many charts illustrating these departures from a normal type of curve; these he hopes to publish shortly. On the accompanying diagram are shown four types of temperature curve, which I call the normal, half-normal, half-inverse, and inverse. In the first the highest point is reached at 3 P.M., in the second at 9 P.M., in the third at 9 A.M., and in the fourth at 3 A.M.

I have taken the 3 and 9 o'clock readings to simplify the diagrammatic representation. In studying a sufficiently large number of cases of consumption many will be found coinciding with, or approximating to, one or other of these types.

As it is seldom justifiable to bother the patient by asking him to take his temperature during the night a complete curve cannot usually be plotted. But when the temperature is taken four times a day according to the times suggested already it is not at all infrequent to find the following types: (1) the lowest temperature at 12 noon instead of first thing

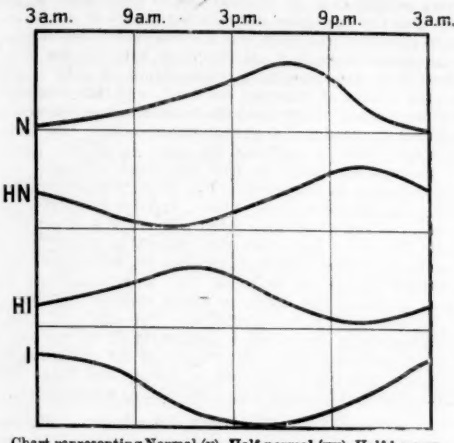


Chart representing Normal (N), Half-normal (HN), Half-inverse (HI), and Inverse (I) types of temperature curves respectively.

in the morning; (2) the highest temperature at 9.45 P.M. instead of 6.45 P.M.; and (3) an entirely erratic type of temperature, sometimes inverse, sometimes highest at noon, and sometimes lowest at noon, &c. With regard to the relation of these types to prognosis, I generally look upon the last as the worst, while I look upon the second as better than the first. At one time it was considered that the inverse type of temperature indicated miliary tuberculosis. Sometimes it does, and while the inverse type usually demands a poor prognosis, with possibly little chance of permanent arrest of the disease, yet I have seen patients who showed this type of curve recover. Still more is it possible for the patient having the less severe abnormal type of curve to recover. With regard to treatment in connexion with the study of these types of curve, wherever the type of curve has departed from the normal, even though the elevations of temperature may not be at all severe, much more caution must be exercised, and particularly under such circumstances the advice "to make haste slowly" is applicable.

There is one more type of curve not infrequently met with, for a time at all events in some cases, and that is a temperature which shows little variation during any time of the 24 hours. (I do not refer here to the continuous fever, generally high or moderately high, of miliary tuberculosis.) Such patients, whose charts present something approaching a straight line, usually do badly if this peculiarity lasts long, even though the elevation may be but a few points above 98·6°, and in such cases it is necessary to proceed with extra caution and not to be in a hurry to prescribe any exercise or exertion.

Peculiarities in Women.

I must next make mention of certain peculiarities of the temperature readings in women. It is usual for the temperature to be raised for some days before each monthly period, and this is physiological, within limits, as it occurs in normal healthy women. For example, a woman in perfect health whose usual rectal "rest" temperatures are 97·9° (36·6° C.) A.M. and 98·6° (37° C.) P.M. for seven days before menstruation begins may have average readings of 98·4° (36·9° C.) A.M. and 99·1° (37·3° C.) P.M. The majority of women can be classified into three groups—viz., those who show this rise of temperature for (*a*) a fortnight, (*b*) ten days, or (*c*) a week. Perhaps the commonest period for it to last is ten days; I have seldom seen it markedly noticeable for longer than a fortnight. Amongst phthisical patients the extent of this rise is very commonly increased both in time and in degree. Not infrequently a shortening of the period of raised temperature is seen as a patient improves under sanatorium treatment. The rise is often gradual. Most frequently the temperature drops as soon as the flow of menses begins, but sometimes it does not drop until the flow has been established a day or two. Occasionally the temperature drops, generally within 24 hours, before the flow begins. The drop is not always complete at once, but is so more usually than not. If this feature of raised temperature is marked there is generally some exacerbation of the symptoms while the temperature is raised, and under such circumstances the resistance of the patient is undoubtedly lowered and she must be rested more. Sometimes the noticeable rise of temperature, and accompanying it feelings of lassitude and even of some malaise, is one of the last symptoms of ill-health to disappear, and one which may last very much longer than all others.

Rare and Ambiguous Cases.

There are occasionally to be met patients with indefinite symptoms and ambiguous signs in whom the temperature suggests that active tuberculosis is present. These cases show some elevation above the limits which I have said may be looked upon as the average temperature; thus one finds a patient with an early morning temperature about 98·4° (36·9° C.) or slightly above this, and with the evening temperature nearly always about 99·5° (37·5° C.). As a rule, such temperatures fall under sanatorium treatment with plenty of rest, but in the cases that I am now referring to the most careful treatment produces hardly any lowering of the temperatures. Under such circumstances it is difficult to decide whether or not the patient has got tuberculosis, and, if tuberculosis is present, whether or not it is active; for, as I have indicated, these temperatures may occur when there are practically no abnormal physical signs and absence of sputum. Such raised temperatures may last for years, and during this period there are suspicions that the patient is not healthy. Perhaps while some of these individuals have no truly morbid condition, others have a tuberculosis of especially low virulence. It is in cases like these that a really reliable and harmless test is still wanted. Several exist, such as the tuberculin test, Calmette's ophthalmic, and von Pirquet's cutaneous reactions. But none of these can be considered both absolutely reliable and harmless. The patients belonging to this class seem to be nearly always of the female sex, and the condition may depend upon some uterine abnormality, for it is interesting to note in this connexion that pregnancy produces the same departures from the normal temperatures, and some of the patients I have had under my care have suffered from menstrual disturbances, in one case dependent upon the presence of a uterine fibroid.

Regulation of Rest and Exercise.

I have now to discuss in more detail the regulation of rest and exercise according to the readings of the temperature. Rest must be prescribed when fever is present. Fever should be considered to be present in any case of which the temperature readings are above 98° (36·7° C.) in the morning and 99·3° (37·4° C.) in the evening; therefore rest such patients in bed until there are good grounds for believing that this does not constitute fever in the particular individual undergoing treatment. If in the case of a patient with slight fever strict rest in bed is insisted upon at a time when he is feeling comparatively well, it will be necessary to convince him, frequently, by persuasion or argument, that the course advocated is to his advantage. In order to do this the medical man must be convinced in his own mind that he is pursuing the right course, but at the risk of too much reiteration let me repeat the course I have already advocated—namely, that resting the patient when there is any fever is the only wise one to pursue. A difference of a few points of a degree on the wrong side of what is usually called normal should indicate rest, and often, if this course be not pursued, instead of the patient making an advance against the disease the disease will advance against the patient. Sometimes the patient will say that he always gets weak, or that he can never eat when kept in bed. Patients do not understand

that weakness of the legs from lying in bed matters little in comparison to saving the lungs from rot. With regard to the appetite, generally patients do not lose weight or appetite in bed, but, on the other hand, especially when the debility is great from the continuance of fever, whether slight or marked, in my experience they gain flesh and their appetites increase. Often patients who have had lack of appetite or serious indigestion off and on for months, or perhaps years, get well, and get permanently the better of these symptoms when they are treated in the rational manner of resting them when fever, even in the slightest degree, is present.

Persistently Raised Temperature.

If the temperature is very persistently raised attention must be paid to the following points:—

1. Is there any other morbid condition preventing the temperature from dropping? By far the commonest cause of fever when pulmonary tuberculosis exists is the pulmonary tuberculosis. Even when tuberculosis of some other system is present it is much commoner for the lung disease to be that which is producing fever. Occasionally, however, slight persistent rise of temperature in a consumptive may be caused by a tuberculosis of some organ other than the lungs, and yet obvious symptoms and signs of this affection are absent; hence it may be overlooked. In this connexion care should be given not to overlook an early tuberculous affection in the genito-urinary tract.

2. Is the rest strict enough? Under this head, in the case of a patient being treated at home, very often talking to relatives and friends or the excitement of receiving visitors is at the bottom of the obstinacy in the fever. Letter writing sometimes, and even reading, has to be supervised and restricted.

3. Is the patient getting enough air? Sometimes it is found, as Dr. Burton-Fanning first pointed out, that the removal of a patient into freer air will materially help the reduction of fever.

4. Are you giving enough encouragement to the patient? A constant stream of encouragement does more than anything else, next to the cardinal principles of treatment, in helping the patient to make good progress. Very occasionally, for this reason, a relaxation of strict rest in bed may be necessary.

5. Is there anything on the patient's mind? It is astonishing what small matters will interfere with the progress of a patient, and sometimes a mental worry, which you do not suspect in the least because it is about a trivial matter, may be interfering with the progress.

6. Would a change do good? I have often found that if you can in any way give the patient a fresh start by changing the room or instituting some slight addition or modification of the treatment, a period of more rapid and surer progress towards recovery is inaugurated. I believe that the removal to fresher air, such as from a room to a chalet or open-air shelter for both night and day, or the starting of a course of tuberculin, acts partly in this way. The patient feels something more is being done, and if he is persuaded to have a more abounding faith the added modification in his *régime* will encourage him and tell in his favour. In this connexion it should be mentioned that it is frequently well to recommend complete change of environment. In the case of sanatorium patients a move to another sanatorium or a visit home may be advisable.

7. Has the time arrived when exercise might be tried? Very occasionally a cautious beginning in this direction aids the reduction of the fever. But experience and experiment show that the error of starting too soon is far commoner than the converse. In lieu of exercise sometimes a little gentle general massage is useful.

8. Is the thermometer at fault?

9. Is the patient practising deceit?

Starting Exercises.

When a point or two of improvement shows itself on the readings of 98·2° (36·8° C.) A.M. and 99·4° (37·45° C.) P.M., then the patient may cautiously begin exercise. When exercise is started for a tuberculous patient the golden rule is to make haste slowly. Let the increase in the amount of exercise be almost imperceptible from week to week in a case where fever has lasted any length of time. In a case where there has been very little fever let more exercise be given gradually, so that from day to day the patient is hardly aware that he has been given more, but from week to week, or fortnight to fortnight, he is able to appreciate considerable increase. Never increase the amount of exercise on a rising temperature. In prescribing exercise never depend on one isolated observation or feature of the temperatures, but on the height and general characteristic of the curve for some days previously. If from the additional guides to be got from studying the general appearance and gain in weight it cannot be decided whether or not to advance the exercise, try—and see the result. For example, I had a patient a year or two ago whose temperature was persistently a few points above 98·6° (37° C.). He had been a very severe case of consumption. Even after a great many months complete rest, during which 3 stones were gained in weight and there was a corresponding improvement in the patient's general condition, the temperature, though seldom high, still remained a few points up. At length I tried the effects of exercise, but for a long time whenever I gave the patient more to do the temperature got worse, and the patient's state and symptoms deteriorated. The indication clearly was to continue the rest. In another patient, and perhaps especially in one who does not show much daily variations in temperature, but where the temperature is slightly though not seriously raised, exercise sometimes has a beneficial effect when first started. Exercise may act in two ways. The mere fact that the patient is prescribed the advance of starting exercise cheers him up, and by this means sometimes favours his progress. But more important than this, as a rule, is the influence which exercise undoubtedly has by means of auto-inoculation. The effect of regular exercise properly prescribed is frequently shown not only by the improved general tone and vigour of the patient and by his lesions showing indications of better and more rapid healing, but also by lower and more regular temperatures.

Two Illustrative Cases.

As an illustration of how much exercise to give, and how important it is to pay attention to other signs as well as to the temperature readings, I might take the case of two female patients who were under my care a short time ago. Both temperature readings for several days at this time were exactly the same—viz., 98° (36·7° C.) A.M. and 99·5° (37·5° C.) P.M. Yet one patient was taking walking exercise to the extent of five or six miles daily, while the other was confined strictly to bed and was allowed but a limited amount of talking and letter writing. The former had been under treatment three or four months, had never had any other than comparatively slight signs and symptoms, and these had largely cleared up. Her general condition was excellent, while at the time I am speaking of the patient was within a week of her monthly period, before which, for rather longer than a week, the temperature was always raised three or four points. The other patient had gained weight, but was still suffering from frequent, rather troublesome cough, with occasional retching, some loss of appetite, and indigestion. Her general aspect was not first-rate; there was a good deal of general debility, and constantly a small quantity of flaky muco-purulent expectoration containing tubercle bacilli. The temperature during two months had shown but slight improvement, and though a trifle better for a few days after the menstrual flow had been established a day or two, its best was seldom appreciably lower than the above readings of 98° A.M. and 99·5° P.M.

Indications of Too Much Exercise.

If a patient is being over-exercised there are several guides from the temperature readings which can help to indicate this. (*a*) The exercise temperature may rise too high. The height to which the exercise temperature goes depends upon the state and the idiosyncrasy of the patient as well as upon the distance walked or the nature of the exercise if other than walking, and the pace at which the exercise is taken. It may be influenced also by meteorological conditions and by the amount of clothing the patient wears. Under ordinary circumstances a patient in good condition taking a proper walk at not too fast a pace, or doing light gardening work, or something of a similar nature, does not increase his temperature above 100·4° (38° C.). (*b*) The exercise temperature may not drop quickly enough. When the disease is quite quiescent and the patient doing satisfactorily, it will be found that the temperature after exercise has dropped to 98·6° within three-quarters of an hour of the end of the exercise. A temperature going up after the cessation of

exercise is an adverse sign; one going down quickly is good. In normal man the temperature after exercise drops to near 98·6° in about 20 minutes. (*c*) The evening temperature may begin to rise. Either the 6 o'clock temperature or the 9 o'clock temperature may be higher than it has previously been, and this may indicate that the patient has been taking too much exercise. Usually "*a*" will be noticed before "*b*," and "*b*" before "*c*." (*d*) Lastly, the morning temperature may begin to rise, but this seldom occurs without some indication from the temperature readings as indicated under the heads *a*, *b*, or *c*. In considering this point, however, the state of quiescence of disease must be taken into account, because at the time when the disease has only just lost its activity slight variations from what I consider the proper temperature readings will occur of one sort or another. For example, during this stage the morning temperature may be a few points up as a result of over-exercising the patient without the other indications having occurred.

Instability and Lack of Elasticity of the Temperature.

In the treatment of phthisis it is well to remember that until the disease is perfectly quiescent there are two characteristics of the temperature.

1. *Instability.*—Slight causes may produce marked results in raising the temperature. The results of physical exertion have been referred to already. Exercise properly used is a most valuable therapeutic agent. But the abuse of exercise is more potent for evil in consumption than anything else. More patients step briskly towards their graves from over-exerting themselves physically than from any other cause. It is important to recognise also that mental excitement may cause marked rise of temperature at a time when the disease has not yet become quiescent. Comparatively slight grades of over-exertion, either in the way of physical exercise or mental excitement, may keep a temperature persistently raised. So, too, may a secondary morbid condition of apparently no grave significance, such as pyorrhœa alveolaris. Again, slight causes may give rise for a short time to distinct, and sometimes even quite alarming, temporary febrile disturbances. As illustrations of this I might give a number of examples. Each of the following causes has distinctly produced a noticeable rise in the temperature of patients I have had under my care during the past year: (*a*) constipation; (*b*) diarrhœa; (*c*) indigestion; (*d*) receipt of a worrying letter; (*e*) love sickness; (*f*) a game of cards; (*g*) hot weather; and, in another case, a thunderstorm. Again, occasionally it is found during the early stages of treatment that the exertion of digesting a meal is sufficient to send the temperature up several points.

2. *Lack of elasticity.*—By this is meant a lack of speedy return to a normal level when the temperature has become raised, whether from a slight cause or from noticeable exertion.

When patients are constantly taking and charting their own temperatures it is expedient every now and then to take measures to prevent over-anxiety as to the readings. Sometimes individuals get temperatures on their nerves, and this interferes with good progress. It is usually possible to laugh them out of their condition, or by admonitions and reassurances to get them out of it. If this cannot be done, then it is much better to do away with all thermometers and charts, for a time at all events. If for any reason temperature readings are of particular importance, the doctor or nurse should always be present to read the temperature at the prescribed times. Or, if this is not convenient, as may be so when frequent rectal readings are required, it is possible to procure clinical thermometers made in two pieces in such a way that the temperature can only be read when the stem is screwed in to a part with the graduated markings upon it, and this can be left for the doctor or nurse to do.

Objects and Results of Treatment.

In treating consumption according to the rules which I have indicated above it is always well to remember the objects we have in view. If a long-standing advanced chronic case of pulmonary tuberculosis is being dealt with it may be useless to aim so high as should be done in a case more favourable for obtaining permanent arrest of the disease. It is improbable that perfect quiescence of the disease can be obtained in certain advanced chronic cases, especially if the proper rational treatment has been given a good trial and has failed to arrest the disease. But I hold strongly to the opinion that the opportunity of taking that chance which prolonged rest under suitable conditions will give to many advanced cases, apparently hopeless of cure, should be given. Furthermore, many cases of consumption, apparently hopeless because of the acuteness of the malady, respond eventually in a marvellous way if patience, perseverance, and belief in the efficacy of absolute rest are exercised. But the rest must be very complete when the temperature is high, and must by every endeavour be continued so long as there is the slightest trace of fever. Regardless of all rules and regulations, many a case of consumption will reach a period of quiescence and sometimes arrest of the disease, but the chances of these going on to a permanent arrest—i.e., to a cure—are not nearly so great if the patient has not learnt how to ward off the recurrence of further activity. This he can only do by learning the rules and *régime* necessary for him to observe in order to bring about quiescence and arrest of the disease.

Mundesley, Norfolk.

CLINICAL AND PATHOLOGICAL ASPECTS OF A SERIES OF "DOUBTFUL" TUMOURS OF THE BREAST.

BY T. BONHÔTE HENDERSON, M.A., M.B., B.CH. OXON., F.R.C.S. ENG.,

SURGICAL REGISTRAR, THE CANCER HOSPITAL, BROMPTON.

IT has for long been recognised that the text-book description of the physical signs of mammary cancer is totally inadequate from the practical point of view, and is moreover actually dangerous in lulling the practitioner into a false security in any tumour of the breast which does not present the classical characteristics. Briefly these are, of course, a "stony hardness," dimpling of skin, retraction of nipple, enlarged and hard axillary glands, and perhaps fixation of the growth to the parietes or fascia beneath it. When these signs are developed not only can anyone make a diagnosis, but perhaps the golden moment for successful operation has passed. Tumours of the breast may be roughly divided into three classes for clinical purposes, the undoubtedly malignant, the doubtful, and the innocent, and these grades in actual practice pass insensibly into one another. It is the doubtful cases to which this paper calls attention, and it will be recognised how great is the diversity of clinical characteristics to be found in this class, that no amount of text-book education is of any assistance in certain cases, and further that certain cases cannot be successfully diagnosed by anyone. A careful perusal of these cases submitted below will make it unnecessary for me to emphasise my conviction that every operable tumour or swelling of the breast should be submitted to operation. My own experience has taught me that the more "doubtful" cases I see the more chary am I of offering a definite opinion—*Experientia non docet.* In the course of the past two and a half years I have seen and personally recorded the notes of 257 cases of breast tumours. Out of these I find that 23, all of which have been submitted to operation, have given exceptional difficulty in diagnosis; in fact, I have preserved an open mind until the microscopical section has been made and the pathological report has been returned. If in these 23 cases I have made, before operation, any provisional diagnosis, it has generally been disagreeably reversed by the microscope. I do not mean to infer that the other cases have been correctly diagnosed, but only that they did not at the time puzzle one as these other cases have done. For instance, in a case of "recurrent carcinoma" the nodule of recurrence proved to be an ordinary needle embedded in inflammatory tissue, with no explanation as to how it got there!

It has been considered advisable to divide these doubtful cases into three groups—those which microscopically proved to be malignant, those which proved to be innocent, and those which, even after microscopical examination, still remained doubtful.

CLASS I.—*Doubtful Cases which proved to be Malignant.*

CASE 1.—The patient was 44 years of age and unmarried. The father and mother had died from phthisis. Tumour of left breast (? duration), glands of left side of neck and left axilla of eight months' duration, after influenza. Breast tumour

discovered after admission to hospital. In the left supraclavicular triangle were groups of enlarged glands of elastic consistence, one larger than a walnut, and two of the size of a hazel-nut. In the left axilla was one solitary enlarged gland on the inner axillary wall, tender, firm, and not hard in consistence. Just above the nipple of the left breast was a patch of indefinite thickening with ill-defined edges. The centre was softer than the periphery. No adherence to skin or deeper parts, not tender, no discharge from the nipple.

Diagnosis.—Tubercular glands of neck and axilla. Chronic mastitis (? tubercular).

Pathological report.—Growth in breast showed early carcinomatous changes. Axillary and supraclavicular glands were tubercular.

CASE 2.—The patient was 53 years of age and unmarried. Dimpling of skin, 12 months. Just above the nipple was a distinct cutaneous dimple a quarter of an inch in length. The whole breast felt knotty and thickened, especially just above the nipple. No tumour palpable. No glands enlarged. No scar in the dimple. Radical operation.

Pathological report.—A small pea-like nodule in the breast, also one enlarged lymphatic gland. The nodule was a scirrhus carcinoma, there being much fibrotic reaction. The gland was inflammatory.

CASE 3.—A married patient, aged 42 years. Left breast, four months. Breast used for suckling up to three months ago. No discharge from nipple since cessation of lactation. Two inches to the inner side of the nipple was a moveable soft elastic swelling of the size of a marble with a well-defined edge. Skin not adherent, nipple normal, but ? slight drag on lactiferous ducts. No discharge obtained from nipple. Little diffuse "granular mastitis" in the breast, which was commencing to atrophy. One enlarged firm gland of the size of a walnut in the axilla.

Diagnosis.—? Galactocele—gland inflammatory.

Treatment.—Local excision of gland and tumour.

Pathological report.—A small portion of breast, with a nodule of the size of a marble, very soft and breaking down, also a gland of the size of a walnut, filled with growth. Microscopically in gland and breast was a very rapidly growing cellular carcinoma with little stroma and rapidly degenerating.

(This patient had no further operation and has developed extensive glandular recurrence.)

CASE 4.—A married patient, aged 64 years. Right breast, six months. Three inches above the nipple was a prominent and visible tumour about three inches by two inches, entirely cystic, skin ? adherent and much discoloured, as by bruising. No retraction of nipple. At the outer margin of the breast was another cystic swelling of the size of half a walnut. Both cysts had ill-defined margins.

Diagnosis.—Intracystic papilloma. ? Carcinoma ("cancer cysts").

Treatment.—Main tumour aspirated and dark altered blood drawn off. Behind this was felt a hard lump of the size of a walnut. Radical operation then done.

Pathological report.—Carcinoma.

In this case there was recurrence later.

CASE 5.—The patient was 75 years of age. Right breast, ? one and a half years. One and a half years ago there had been a clear yellow discharge from the nipple lasting only six weeks, never blood-stained. Four months ago had noticed a small hard lump in the lower and outer quadrant; rapid painless enlargement. Now more than the outer half of the breast is occupied by a cystic swelling nearly as large as a closed fist. Skin adherent, nipple fixed when cyst is handled, but not retracted. Swelling prominent, roughly circular, no attachment to chest wall—*no glands enlarged.*

Treatment.—Cyst aspirated and blood drawn off. Breast and fascia removed.

Pathological report.—A large cyst of the breast full of blood clot, the wall of the cyst being thickened at one part. The thickened wall showed malignant changes arising in the breast tissue, permeating the lymphatics.

CASE 6.—The patient was 61 years of age. Right breast, four weeks? At the upper and outer limit of the breast, closely incorporated with the breast substance, was a small hard swelling with ill-defined margins, about as large as, but flatter than, a marble. It lay in relation to the outer border of the pectoralis major, and was freely moveable over the chest wall. No retraction of the nipple. No enlarged axillary glands detected. Left breast normal.

Operation.—Preliminary excision. Macroscopical appearance suspicious. Wound closely sewn up and a radical operation done.

Pathological report.—Showed a minute nodule of scirrhus carcinoma surrounded by a fibrotic mastitis.

CASE 7.—The patient was a widow, aged 70 years. Left breast, 12 months. A nodule in the left breast had been accidentally noticed 12 months ago whilst washing. It had slightly increased in size without symptoms. Both breasts were pendulous and atrophied. The right breast was otherwise normal. The left was thickened in its lower half (chronic mastitis). Lying in this thickened portion was a small hard nodule very freely moveable, about one and a half inches external to the nipple; it was about the size of a hazel nut, ? a very tense cyst. No retraction of the nipple or skin. No enlarged glands palpable.

Diagnosis.—Chronic mastitis, with cyst, or an early carcinoma.

Treatment.—Local excision for microscope, followed by radical operation.

Pathological report.—Early carcinoma.

CASE 8.—The patient was 46 years of age and married. Right breast, four months. Painless; no discharge from the nipple. At the outer side of the breast, two inches from the nipple was a hard moveable tumour of the size of a walnut, situated deeply in the gland. The edges were well defined, and there was considerable mobility of the mass in the surrounding breast tissue. No depression of nipple or discharge, no apparent connexion between the tumour and the lactiferous ducts, there was no adherence of the skin, and no "drag" upon the underlying fascia. A well-marked hard gland of the size of a pea was felt on the inner wall of the axilla.

Diagnosis.—? Scirrhus. ? Tense cyst.

Treatment.—Exploratory incision. Tumour found to be a thick-walled cyst containing a papillomatous growth of the size of a pea. On macroscopic section of the cyst wall it was found that the intracystic growth appeared to be spreading into the cyst wall, and the growth was considered to be probably malignant. The growth was locally excised for the microscope, and a fortnight later radical operation was done.

Pathological report.—A small thick-walled cyst containing an intracystic growth. Part of the cyst wall was cut. Carcinoma of the breast showing lymphatic spread with perilymphatic reaction. An axillary gland showed rapidly growing carcinoma, with very little gland tissue left.

CASE 9.—The patient was 43 years of age and married. Left breast, five to six weeks. Above and internal to the left nipple was a firm, slightly moveable tumour, soft and elastic in consistence, of somewhat indefinite outline, but easily appreciated by the flat of the hand. It moved freely over the chest wall, but was incorporated with the breast substance. No attachment of skin could be demonstrated. On gently squeezing the breast a bead or two of thin white secretion could be made to exude from the nipple. This could not be obtained on the right side. No enlarged glands were detected clinically in the axilla.

Diagnosis.—? Chronic abscess. ? Carcinoma.

Treatment.—Radical operation done. Some small hard glands were found in the axilla.

Pathological report.—Carcinoma growing rapidly in the glands.

CLASS II.—*Doubtful Tumours which proved to be Innocent.*

CASE 10.—The patient, aged 26 years, was married. Right breast, six months. A small painless lump, gradually enlarged, came to the surface, and the skin became red. A small opening appeared at the summit of the swelling from which a little discharge occurred. This scabbed over and the discharge ceased. The scab had recently grown larger. In the lower and outer quadrant of the right breast was an almost circular hard swelling of the size of a walnut. The skin over it was reddened and had given way in the centre, which was covered by a circular dark-brown dried scab. There was one small firm axillary gland.

Diagnosis.—? Chronic suppurative mastitis. ? Growth.

Treatment.—Local excision.

Pathological report.—The changes were of a chronic inflammatory nature, with giant cells and caseation, probably tubercular. No thickening of vessels; no tubercle bacilli could be demonstrated.

CASE 11.—The patient, whose age was 38 years, was

married. The left nipple had always been retracted. In the left breast there had been a painless lump for three months. The left breast was generally in a condition of (?) chronic mastitis. In the lower and outer quadrant was a large swelling four inches by two and a half inches, oblong in shape, and lying transversely, passing beneath areola to the inner side of the breast. Consistence elastic, fluctuating in parts. Skin not affected, no deep fixation. One enlarged axillary gland.

Diagnosis.—? Chronic mastitis (cystic), ? breaking-down growth.

Treatment.—Radical operation.

Pathological report.—A large breast with diffuse mastitis and cysts full of purulent material, one large axillary gland having the appearance of inflammatory change. Microscopically chronic mastitis with giant cells, probably tubercular, but no tubercle bacilli demonstrable. The gland also was inflammatory.

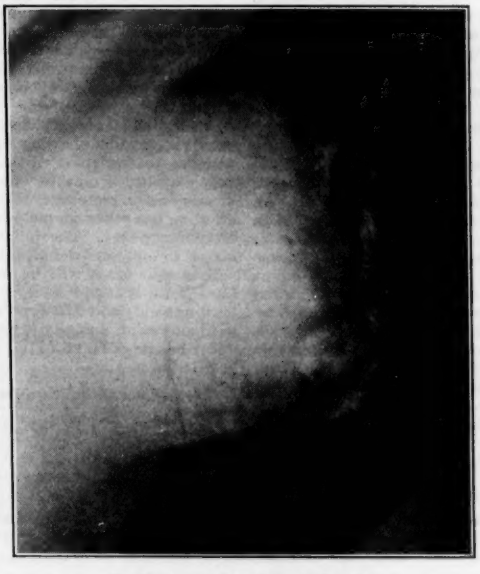
CASE 12.—The patient, who was 40 years of age, was unmarried. Right breast. A small tumour, three months, and a blood-stained discharge from the nipple. The right nipple was a little enlarged, but was soft and supple; "nipple reflex" was present. The mouth of one of the ducts was slightly enlarged and would admit the blunt end of a pin. Immediately below and to the outer side of the nipple was a moveable cystic swelling of the size of a small walnut, in connexion with a duct, slightly bossed and with a very definite margin. Skin free, moveable over deep fascia. On pressure over the tumour a thin blood-stained discharge was obtained from the nipple.

Diagnosis. — Intracystic growth (? innocent; ? malignant).

Treatment.—Local excision.

Pathological report. — A small cyst containing an intracystic papilloma (benign).

CASE 13.—The patient was 52 years of age. In the left breast there had been a small lump for ten years, enlarging and tender at every menstrual period. In the last three weeks it had increased rapidly in size and had become very painful. No discharge from the nipple. A large soft tumour occupied the whole of the breast, projecting forwards and very prominent. It was smooth as a whole, with two small surface bosses. It was not adherent to the skin or chest wall. No retraction of the nipple. Enlarged distended blue veins were seen over the breast and over the upper part of the left chest. No enlarged glands were felt.



Profile view of right breast in Case 14.

Diagnosis.—Fibro-adenoma (? with rapid malignant degeneration).

Treatment.—Radical operation.

Pathological report.—The growth showed the character of a fibro-adenoma. The axillary glands were inflammatory. (N.B.—In view of the history of sudden three weeks' enlargement a careful examination was made to exclude carcinomatous or sarcomatous degeneration.)

CASE 14.—The patient, who was unmarried, was 47 years of age. Right breast, two years, slow growth, painless, no discharge from nipple. The whole of the right breast was the seat of a large bossed tumour, thinning and reddening the skin. Tumour firm, not densely hard in consistence, but in more than one place near the surface it felt soft and elastic—almost cystic. From the centre portion a minute sinus gave out a little clear yellow fluid. The mass was very prominent, its base being well-defined and of almost circular outline. The whole mass moved very freely over the chest wall and there was no outlying infection of the skin. The nipple was retracted out of sight. One axillary gland was easily palpable but was scarcely enlarged, and retained its normal consistence.

Diagnosis.—? Sarcoma. ? Cysto-adenoma.

Treatment.—Radical operation.

Pathological report.—A large tumour occupying the whole breast and projecting two or three inches above the surface. Skin fixed over the growth. One small enlarged gland. Microscopically it was a fibro-adenoma; the gland was inflammatory. (N.B.—No sarcomatous elements were found, although carefully looked for.)

CASE 15.—The patient, aged 40 years, was married. Left breast. Nine months ago had noticed a little discharge from the nipple which would dry on the apex of the nipple. On rubbing it off a little more would appear. Discharge clear, never blood-stained. The breast shortly afterwards became rather tender, especially in the upper and inner quadrant. The major part of the breast felt thickened and harder than normal between the finger and the thumb. With the flat of the hand most of this was no longer palpable, but there was a more distinct swelling to be felt one inch above and internal to the nipple with an indefinite margin, yet distinct from the surrounding tissues. This swelling was tender and felt elastic. No discharge was obtainable from the nipple, which was slightly retracted. No glands clinically affected.

Diagnosis.—? Mastitis. ? Growth.

Operation.—Radical.

Pathological report.—Large fat breast with "scirrhus-like" mass one and a half inches from nipple. Nipple drawn in. Enlarged axillary glands up to the size of an almond. Microscopically, hyperplastic changes in the parenchyma of the gland, accompanied by much inflammatory reaction. No breast tissue in the glands.

This case well illustrates (*a*) the difficulty of estimating the hardness or otherwise of a small breast tumour "floating" in a fat breast, and (*b*) how easily enlarged axillary glands are missed in a fat patient.

CASE 16.—The patient was 33 years of age and married. Right breast, five to six weeks. Nipple much indrawn. A large swelling occupied the greater part of the breast. The skin of the areola was thinned and reddened and fluctuation was obtained immediately beneath it. Around this was a diffuse inflamed area. One gland, soft in consistence, was felt in the axilla.

Diagnosis. — Suppurative mastitis ? possibly breaking-down soft growth.

Treatment.—Amputation of breast. Axilla not opened.

Pathological report.—A dense mass of inflammatory-looking material underlying the nipple, separated from it by a large cystic space filled with blood. (Puncture had been done just before operation, clear fluid blood and creamy pus had issued.) Microscopically, fibrosis and chronic inflammatory changes, the cyst wall being composed of granulation tissue, with no definite evidence of tubercle.

CASE 17.—The patient, who was unmarried, was 58 years of age. Left breast, three months. A small lump was noticed, and there was a clear discharge from the nipple. Just below and inside the left nipple was a small elastic tumour no larger than a small nut. It was quite moveable over the chest wall, but only to a slight extent in the breast itself, and was connected with the nipple, from which on pressure a clear yellow serous fluid could be expressed. No enlarged glands detected. The patient was, however, very stout, and examination was difficult.

Diagnosis.—Intracystic growth. ? Innocent. ? Malignant.

Treatment. — Radical operation. No enlarged glands felt.

Pathological report.—The wall of cyst was formed of fibrous tissue with no trace of epithelium, the wall being infiltrated with blood pigment. The breast showed dilatation of some of the glands with intracystic growths.

CASE 18.—The patient was aged 33 years and married. Right breast, six months. Swelling noticed for six months. Blood-stained discharge from the nipple for three months. Beneath the areola on the inner side of the nipple was a hard rounded swelling of the size of a marble in connexion with a duct and attached by this to the nipple from which could be obtained, by squeezing, a drop of dark-red discharge. In addition, at the upper limit of the breast was a small swelling, which appeared to be a patch of mastitis one inch by half an inch in extent, moveable and irregular as if containing numerous small cysts. At least one slightly enlarged axillary gland could be felt, which was normal in its consistence.

Diagnosis.—Intracystic growth. ? Innocent. ? Malignant.

Treatment.—Whole breast amputated. Axilla not opened.

Pathological report.—Benign cystic adenoma, with intracystic papillary growths.

CASE 19.—The patient was 24 years of age and unmarried. Left breast, one month. A clear discharge from the nipple, very occasionally blood-stained. Sometimes the discharge had been more opaque but never purulent. The breast appeared normal, except at a spot one inch below the nipple. Here could be felt a small oblong tumour of firm consistency, somewhat bean-shaped but not as large as a bean. It was elastic, moveable in the mammary tissue, and distinctly tender. A bead of clear yellow secretion could be pressed from the nipple. No axillary glands could be detected to be enlarged.

Diagnosis.—Intracystic papilloma, probably innocent.

Treatment.—Local excision.

Pathological report.—Intracystic papilloma.

CASE 20.—The patient was 69 years of age. Left breast, six to seven months. No discharge from the nipple. An oblong swelling one and a half inches by three-quarters of an inch lay beneath and to the outer side of the left nipple. It was somewhat lobulated, feeling like a tense cyst. It was freely moveable over the pectoral fascia and to a less extent in the breast itself. Just to the outer side of the nipple the skin was discoloured over an area that could be covered by a shilling, having a bluish tinge in the centre with a light green circumference, suggestive of underlying blood. No discharge could be expressed from the nipple. Over the discoloured area the skin was elevated and was attached to the tumour. No enlarged glands were palpable.

Diagnosis.—Intracystic papilloma. ? Innocent.

Treatment.—Local excision.

Pathological report.—Benign intracystic papilloma.

CLASS III.—*Doubtful Cases.*

CASE 21.—The patient, who was married, was 47 years of age. Right breast, three months. A small lump had been for three months steadily enlarging, with discharge of clear yellow fluid, occasionally chocolate-coloured, from the nipple. Moveable lobulated swelling three inches by two inches in diameter in the upper and inner quadrant of the breast, its lower end lying beneath the nipple; not attached to the skin, but dragged on the nipple when pulled upwards. In consistence it was elastic and at one point was fluctuating. On pressure a clear fluid, becoming brownish-red, could be expressed from the nipple. No glands were clinically enlarged.

Diagnosis.—Intracystic growth; ? nature.

Treatment.—Exploratory incision. Growth not unlike a breaking-down carcinoma, containing turbid fluid. Excised for microscope (partially).

Pathological report.—Chronic inflammatory changes in which the breast cells had undergone great hyperplasia. Possibly early carcinoma.

Four months later this patient returned with an irregular, partially cystic swelling of the size of a tangerine orange beneath the scar, freely moveable over the chest wall, but attached to the skin along the scar. No fluid could be expressed from the nipple. No enlarged glands.

Treatment.—Radical operation. A note by me at the operation states: "The growth is undoubtedly a cellular soft carcinoma partially broken down in the centre, where there is a small quantity of thick turbid fluid."

Pathological report.—Again doubtful. ? Diffuse carcinoma.

CASE 22.—The patient, who was 40 years of age, was unmarried. Left breast, five months. Both breasts were large, but the nipples were not prominent. The left breast was the seat of a diffuse thickening in the lower and inner quadrant. In the centre of this, about one and a half inches internal to and below the nipple, was a more circumscribed swelling, palpable to the flat of the hand, the surface area of the size of a plum and shading off into the surrounding thickened area. It was hard but not stony and moveable over the chest wall. There was no retraction of the nipple or attachment of the skin demonstrable. One definite enlarged axillary gland, very moveable and not markedly hard. Right breast normal.

Diagnosis.—Chronic mastitis with commencing carcinoma in the centre?

Treatment.—Radical operation.

Pathological report.—Advanced chronic cystic mastitis with doubtful transition to malignancy; no deposit in glands.

CASE 23.—The patient was 51 years of age and unmarried. Right breast, 15 months. Both breasts were extremely small, flat, and ill-developed. Appreciable, but indefinite thickening was to be felt beneath and to the upper and outer side of the nipple on the right side, but no definite tumour. No glands felt. No discharge from the nipple.

Treatment.—A wedge of tissue removed for the microscope.

Pathological report.—This breast tissue was suspicious, showing changes consistent with early malignancy. Radical operation was then done.

Pathological report of removed breast.—Dense fibrosis due to mastitis ? malignant. (It must be noted that the most thickened portion of this breast had been already removed.)

An attempt to subdivide these cases into groups according to their clinical characteristics is instructive, but can only be very roughly done, owing to the tendency of these characteristics to overlap—i.e., the tumour may be partly solid and partly cystic, it may be clinically solid and actually cystic, or *vice versâ*; moreover, the fluctuation of an inflammatory swelling has other characteristics separating it from that of an ordinary cyst. The following grouping cannot therefore claim to represent definite clinical entities sharply divided, and several cases will be found to overlap. For instance, Case No. 8 is found under two headings—viz., I. (clinically hard or solid) and III. (cystic). Clinically this tumour was hard and solid, actually it was a thick-walled cyst. No. 11, under headings II. and III., was in part soft and elastic, and in part fluctuating.

I.—*Tumours clinically solid or hard.* *No. of case quoted above.*

No. 1	Malignant.	No. 15	Innocent.
,, 2	,,	,, 18	,,
,, 6	,,		(3 cases.)
,, 7	,,		
,, 8	,,	No. 22	Doubtful.
(5 cases.)		,, 23	,,
No. 10	Innocent.		(2 cases.)

II.—*Clinically soft or elastic.*

No. 3	Malignant.	No. 14	Innocent.
,, 9	,,	,, 15	,,
(2 cases.)		,, 17	,,
No. 11	Innocent.	,, 19	,,
,, 13	,,		(6 cases.)

III.—*Cystic.*

No. 4	Malignant.	No. 12	Innocent.
,, 5	,,	,, 16	,,
,, 8	,,		(3 cases.)
(3 cases.)		,, 21	Doubtful.
,, 11	Innocent.		(1 case.)

Cancer of the breast, therefore, may be hard, elastic, or cystic, and I believe that too little attention is paid to these widely different clinical characteristics, especially in the education of students, the large majority of whom become general practitioners and are those who first see the early cases. If it could only be taught in our great medical schools that every abnormality of the breast is potentially malignant, the operative recurrence and the mortality from this dread disease would no longer reflect discredit upon British surgery. I would ask the reader to re-read these clinical reports and to make his own diagnosis of each case before referring to the pathological report; further, to

compare the physical signs of the innocent and malignant tumours in their respective classes (viz., solid, soft, and cystic) in order that the difficulty of diagnosis may have for him its full significance.

I think no commentary is required upon the individual cases, but one or two points require emphasis. The first, to which attention has already been drawn and which is well known, is the difficulty of diagnosis between a small hard tumour and a small tense cyst, especially in a fat breast; the second, that a discharge from the nipple, be it clear or blood-stained, is no index to innocency or malignancy; thirdly, that in doubtful cases glandular enlargement is no criterion of malignancy, being indeed rather the reverse in many cases; and fourthly, that the physical sign, dimpling of skin, is not necessarily a proof of the presence of a growth. I lay stress upon this, as in my belief too much weight is laid by certain writers upon this sign as pathognomonic of growth, whereas chronic mastitis is responsible for this sign in more cases than is believed. The same criticism is applicable as regards retraction of the nipple in non-malignant cases (*vide* Cases 14, 15, 16).

In conclusion, I quote one more case, not as an example of a doubtful tumour, as the diagnosis was unhesitatingly made that it was innocent, but to emphasise once again the desirability of removing *all* tumours of the breast whenever possible and having them examined by a skilled pathologist. This case, though not definitely malignant, showed enough microscopical evidence to justify its treatment, although undoubtedly it was clinically innocent.

The patient was 20 years of age and unmarried. Right breast, two months. At the outer periphery of the breast was a minute hard nodule of the size of a pea, freely moveable. No enlarged axillary glands. No mastitis in either breast.

Treatment.—Local excision.

Pathological report.—Small tumour of the size of a pea. Breast tissue undergoing hyperplastic changes consistent with commencing malignancy.

I am indebted to the staff of the Cancer Hospital, Brompton, for their kind permission to make use of these cases, and to Dr. Alexander Paine for the pathological reports. The photograph is of Case 14 (adenoma), and for it I am indebted to Dr. T. J. English.

PEAU D'ORANGE IN ACUTE MAMMARY CARCINOMA: ITS CAUSE AND DIAGNOSTIC VALUE.

BY ARCHIBALD LEITCH, M.B. GLASG.,
PATHOLOGIST TO THE CAIRD CANCER RESEARCH LABORATORY, DUNDEE.

THOUGH it is true that no constant relation exists between the microscopic appearances of a mammary carcinoma and its clinical course such as to enable us to say that a particular histological type characterises a slow or rapid evolution, yet in extreme cases there is a not infrequent relationship between them. Thus the growth to which clinicians attach the name of scirrhus is generally characterised by the preponderance of dense fibrous tissue over the amount of massed epithelial cells, and, on the other hand, the very rapidly growing carcinoma shows a relatively excessive cellularity. It may, however, happen that a slowly growing cancer is surprisingly cellular and a rapidly growing malignant tumour densely fibrous, and this point seems to be brought out clearly in the case of mouse cancers by Bashford and his colleagues.[1] The histological appearance of a cancer, though sometimes suggestive of, is no gauge to, its degree of malignancy; and, practically, when we speak of degrees of malignancy in tumours we have to depend on the clinical evolution of the case. I do not know any criteria that will enable the pathologist to predict a slow or a rapid course in the disease. Starting from the atrophic scirrhus carcinoma lasting for years and regarded by some, to my mind erroneously, as a malignant tumour partially cured by a natural reparative process of fibrosis, we have all sorts of gradations to those tumours of such rapid growth and dissemination that they merit the term "acute cancers." These last, fulminating in their progress, may produce a fatal issue within a few weeks of their commencement.

[1] Third Scientific Report of the Imperial Cancer Research Fund.

It is always of importance to recognise any cancer promptly and to operate promptly and as extensively as possible, no matter how small or how slow in growing it may be, but in these cases of acute mammary carcinoma prompt recognition and immediate and extensive operation are absolutely essential if any hopes of its cure are to be entertained. Most of the current surgical text-books fail to make any reference to this particular class of cancers though they are a fairly well-defined class. That may be on account of the rarity of the condition. During five years' clinical and laboratory investigation of cancer in London, in which time I must have examined some hundreds of cancers and other affections of the breast, I encountered the condition on two occasions only, and in both cases the disease was considered to be of an inflammatory nature by the surgeons who operated on them. Speedy recrudescence and dissemination showed the true nature of the disease. In Glasgow I have seen four cases and in Dundee one in the same number of years. Its rarity in hospital practice may not, however, be a correct indication of the frequency of its occurrence in general practice.

Clinical characters.—Acute carcinoma presents itself as a diffuse swelling of the breast in which the normal shape of the organ is retained; in fact, in comparing the two breasts one would be inclined to say that from an artistic point of view the affected breast is the better modelled. There is no flattening to be observed, no puckering even on digital movement, no asymmetrical bulging, no appearance as if of a healed scar. The nipple may not be appreciably indrawn nor give any sero-sanguineous discharge. There may or may not be a slight blush on the skin, especially in the lower part of the breast, but at any rate there is neither heightened temperature nor tenderness. Palpation of the breast shows that the swelling is diffuse and that there is no localised hardness, perhaps no hardness at all. The disease may exist during pregnancy or lactation, and in these cases is liable to escape detection, or it may be found at any age, though generally it occurs in women who have not reached the period at which the occurrence of cancer is most common. Thus it follows the broad law, to which there are exceptions, that the younger the age of the patient the more rapid the growth. There are two points in the diagnosis of the condition that are of great value—the diffuse swelling like a hypertrophy and the occurrence of *peau d'orange*—and the conjunction of these two signs is pathognomonic. To the latter attention may be more fully directed. The name *peau d'orange* is descriptive enough to one who has seen it, but to those who have not noticed the condition it may not convey much impression, for orange skin is very variable and the irregular pitting and puckering of the latter might very well describe the fairly common appearance of the skin in cancer of the breast when it is affected by contraction of a growth underneath. In acute carcinoma, on the other hand, the skin has minute pits very regularly about a quarter of an inch apart (Fig. 1), giving the appearance as if the skin had been dabbed with a blunt pin. The term "pig skin" is also applied to it and is fairly descriptive; it resembles pig's skin if the hairs were removed and the pits represented by the place of insertion of the hairs. But perhaps the best picture of the condition is obtained by examining the back of the arm, especially when warm, under a fairly strong lens.

Cause of "peau d'orange."—The usually accepted opinion is that the pitting is caused by the contraction of the fibrous tissue in the tumour acting through the suspensory ligaments of Astley Cooper. Fig. 2 shows one of these "ligaments" or trabeculæ running to the corium through the intervening adipose tissue. It will be referred to later. Against this view there are many objections. The Astley Cooper ligaments are not so uniform in their arrangement, nor are they so closely set in relation to each other as to produce by their contraction such regular pitting. Again, any contraction from below would not produce depressions, the depth of which is as great as, if not greater than, their breadth. We should expect when we free the skin by dissecting under it that there would be diminution in the depth of the pits, if they were due to contraction from below. But the chief argument against accepting the general view is that the condition is found only in very rapidly growing, rapidly *expanding* tumours, in which the fibrous tissue is at a min mum. Contraction in less acute tumours produces a much rougher puckering. A very suggestive clue to the real cause is given by the appearance of the identical condition in the skin of

FIG. 1.

FIG. 2.

FIG. 3.

the arm in the "brawny arm of breast cancer." Here there are no "ligaments of Astley Cooper" nor any contraction due to growth. The lymph stasis of "brawny arm" is due, not to the compression of the axillary veins, but to the blockage of the lymphatics by the permeating growth. If any further proof were required for this it is supplied by the success of Sampson Handley's very ingenious operation of lymphangioplasty, which, by establishing artificial lymphatics incapable of blockage, restores the lymph drainage of the arm. It might be permissible to conclude from the identity of the two conditions that they were of similar causation - lymph stasis; but microscopic examination alone can settle the question.

Microscopic appearances of acute carcinoma.—Sections taken from the tumour show large areas of spheroidal cells closely packed together and generally well preserved, though sometimes exhibiting central disintegrations. The appearance is sometimes called "medullary" carcinoma. The stroma is usually relatively small in amount. Portions may be chosen from the growth which show only proliferation within the ducts and acini, but this proliferation is always a marked feature and differs from that of mastitis, as I have pointed out elsewhere,[2] in that there is no loss of nuclear staining, whilst the cells tend to form numerous daughter lumina. At parts such as these, the elastic tissue sheath of the ducts is sometimes intact, at other parts it seems to be undergoing solution. This proliferation is found everywhere throughout the gland; the epithelium of the whole organ seems to be malignant. In addition, as we get nearer the edge of the growth, we find extensive lymphatic blocking by masses of cancer cells. In Fig. 2 the trabecula running from the mammary gland to the dermis through the intervening fat carries in its lymphatics epithelial cells in direct continuity with those of the growth.

Appearances of the skin.—When the skin is cut through it appears to be enormously thickened—from the normal 0·5–1 millimetre over the breast to 8 millimetres or more. It is dense and white and appears like ordinary squamous epithelium much thickened, and it retains this appearance in alcohol. But the microscope shows that the epithelium itself is thinner than usual. The normal papillæ are to a great extent obliterated or are only irregularly maintained. At some parts the papillary layers of elastic tissue are quite absent, at others they are dense, whilst intermediate conditions are found. Where they are absent the change seems to be associated with the presence of collections of lymphocytes and some plasma cells directly under the epithelium. The condition then resembles what has been described by Ribbert, Victor Bonney, and others as tissue prepared for cancerous invasion by the epithelium. It may, however, here be noted that the surface epithelium is not proliferating, almost certainly never would do so, and it is probable that the so-called "precancerous" conditions are brought about by the same mechanism.

The whole apparent thickening of the skin is due to the condition of the corium. The connective tissue appears to be in a sodden condition, the fibrous strands are widely separated from each other, the arterioles are dilated, and their walls are thickened. The lymph channels are especially marked. Towards the deeper parts of the corium it would seem as if practically every lymphatic channel were filled with cancer cells; some are filled right up to their origin immediately under the epithelium, others as they approach the surface are seen to be empty and often dilated. Perilymphatic collections of lymphocytes, with a few plasma cells amongst them, are marked features, and these perilymphatic infiltrations seem to follow a definite plan. Fig. 3, which is a projection drawing, shows them running in a slanting direction from the surface epithelium, and it is noteworthy that in the section from which this drawing was taken they sloped towards the trabecula shown in Fig. 2. It is probable that the lymphatics in this trabecula represent the trunk and the smaller vessels in the cutis the branches of a lymphatic tree. The cancer cells have permeated the lymphatics in the opposite direction to the course of the lymph stream. In the centre of some of these perilymphatic infiltrations we may see small masses of cancer cells in well-defined lymphatic spaces; in some the channels are quite empty, whilst, on the other hand, we may find cancer cells in lymphatic channels, and even empty channels without any perilymphatic infiltration. It is evident from this that the "round cell" infiltration is not due to a reaction to the cancer cells as such; it may be present where these are absent or absent where these are present. In the former condition it *precedes* the lymphatic permeation. Such infiltrations seem to me to be the direct result of complete blockage of the channels, seeing that where we find them it is possible to trace the empty channel back to a place where the epithelial cells are. When they are absent either around an empty or a filled lymphatic channel it is to my mind an evidence that collateral branches carry on the small amount of lymph circulation that is necessary as long as the surface epithelium can live. Small areas of round cell infiltration can also be seen round definite arterioles, but they are much less marked.

The depressions of the surface that give the appearance of orange skin are the exaggerated pits of the hair follicles. The erector pilæ has its fibres separated like the rest of the corium. To sum up, the thickening of the skin is due to changes in the corium. These changes are the results of lymphatic permeation and consequent lymph stasis. The corium is expanded and the overlying epithelium is raised *above* its normal level by the pressure except at those places where it is bound down by the insertion of a hair follicle deep in the corium, where it is moored, as it were. Taking into consideration the already known cause of the pitting in brawny arm and this same explanation advanced for the similar condition, *peau d'orange*, in the breast, it seems reasonable to argue that where we get the condition it must be due to lymph stasis caused by blockage of the lymphatics. There is no disease of the breast at all likely to produce this appearance other than cancer. Thus even in the absence of other signs a diagnosis of acute mammary cancer from this alone would be practically certain.

Dundee.

[2] Archives of the Middlesex Hospital, vol. xiii.

DESCRIPTIONS OF ILLUSTRATIONS ON PAGE 862.

FIG. 1.—Reproduction of a photograph of a breast with acute carcinoma. Shows the peculiar pitting of the skin (*peau d'orange*) characteristic of the disease. Case under the care of Mr. David M. Greig.

FIG. 2.—Section of skin and underlying fat in acute mammary carcinoma. A "ligament of Astley Cooper" is shown running up to the dermis. The corium is much thickened. The black dots in the corium and in the ligament represent masses of cancer cells. The ligament is the carrier of the lymphatic channels between mammary gland and skin. Projection drawing.

FIG. 3.—Projection drawing showing histological analysis of thickened corium. Perilymphatic infiltration is marked at some places, at others absent. The elastic tissue under the epidermis is practically lost and the papillæ are to a great extent flattened out.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF GANGRENOUS FEMORAL HERNIA WITH SECONDARY RESECTION OF BOWEL AND END-TO-END ANASTOMOSIS; RECOVERY.

BY ROBERT D. MOTHERSOLE, M.D., M.S. LOND., F.R.C.S. ENG.,
SENIOR HONORARY SURGEON TO THE BOLTON INFIRMARY.

THE patient was a married woman, aged 34 years, and was admitted to the Bolton Infirmary on March 9th, 1909, with a history of four days' abdominal pain, vomiting, and absolute constipation. On admission her abdomen was somewhat distended, her temperature was 97° F., and her pulse-rate was 122; she was found to have a strangulated femoral hernia on the right side. The sac when opened was seen to contain foul pus and a knuckle of grey, gangrenous, small intestine. The abdomen was opened by a second vertical incision to the outer side of the right rectus, its lower end being an inch above Poupart's ligament. The affected loop was freed from the femoral ring and brought outside and clamped; the gangrenous part was then excised and a Paul's tube was tied into each end. An indiarubber drainage-tube was passed into the pelvis through the femoral

opening. The patient's condition improved gradually after the operation, and though there was some sloughing about the femoral canal there was no evidence of any peritonitis. Three weeks after the operation the temperature became irregular and an abscess was found in the abdominal wall. This was opened, but was slow in healing, causing further operation to be delayed until May 18th, by which time the patient's condition had much improved, in spite of part of her small intestine and the whole of the large having been out of action for ten weeks. Thanks to a liberal use of zinc ointment the skin round the artificial anus was very little worse for the constant fæcal discharge.

For 24 hours before her second operation nothing was given by the mouth but occasional sips of water, in order to lessen the bacterial infectivity of the intestinal contents. No attempt was made to disinfect the area of operation until the patient was partly under the influence of ether, when the skin was well washed with soap and water, then swabbed with spirit of wine, and finally painted with iodine liniment of 10 per cent. strength. An elliptical skin incision was made round the artificial anus, and the edges of the island of skin were united by a continuous catgut suture, so as completely to cover both openings into the bowel. The raw surface was then swabbed with carbolic lotion of 5 per cent. strength. After opening the peritoneum and separating adhesions, the artificial anus was removed by dividing each end of the bowel between two clamps. The ends of the bowel were then united by simple suture, the shrunken distal end being divided along the border furthest from the mesentery in order to make it fit. The abdominal wound was completely closed. The patient's recovery was quite uneventful. Her temperature rose to 99·6° 18 hours after the operation but was subsequently normal. The bowels acted spontaneously twice on the evening of May 20th. With the exception of sips of water and rectal saline injections nothing was given to her from the day before the operation until three days after it—i.e., from May 17th to 21st. Then, to begin with, some weak tea, without milk, was allowed. The wound healed entirely by first intention, and she left hospital on June 5th, 18 days after operation, in excellent condition.

The main reason for publishing this case is that it gives such an excellent testimonial to the use of iodine as a disinfectant of the skin previous to an operation. In this case the wound showed no sign of sepsis, although the skin had been so long contaminated with fæcal discharge and pus. The method seems to be specially valuable in emergency operations and in cases where the ordinary means of preparation cannot be used. It may be noted that in spite of absolute starvation for four days the patient's recovery after the resection was rapid and uneventful.

Bolton.

A DOUBTFUL CASE—SCARLET FEVER OR INFLUENZA?

By ANDREW DUNLOP, M.D. EDIN.

ON May 20th I was called to see two children, a boy, aged seven years, and his sister, aged about four years, who had both been taken ill on the previous evening. The boy had a temperature between 101° and 102° F.; he had frontal headache, pain in the limbs, slight sore-throat, and some cough. The case was evidently one of influenza, which was prevalent at the time. His sister had a temperature of about 102°; she had slight sore-throat, and her other symptoms resembled her brother's, but on the face, neck, upper part of the chest, and upper arms there was a uniform red eruption. On the next morning the eruption was exactly that of scarlet fever, minute red dots, and diffused redness, and it was now well developed on the trunk, and was beginning to show on the thighs. The sore-throat had not increased, the tongue was slightly furred, and the temperature was 100·6°. On the 22nd the eruption was well developed on the face, neck, trunk, upper arms, and thighs. There was little on the forearms and hands, or on the legs and feet, otherwise there was no change. On the 24th the temperature was 99°, and the eruption had begun to fade on the upper part of the body. By the 26th the temperature was normal, the eruption had almost entirely disappeared, and there was a little branny desquamation on the cheeks. The throat was well, but there was a little cough. A few days later there was some furfuraceous desquamation on the body; on June 4th I noticed this on the thighs, and on the 8th there was some on the hands. There was nothing in the way of flakes, only here and there a few bran-like scales. There was no albumin in the urine. When I saw her on the 12th there was no trace of desquamation anywhere.

Meantime, the boy, after two days' fever, got quite well; also, on the 24th, the nurse who had been isolated with the little girl showed a temperature of 102·5°. She had headache and aching limbs, and was in bed for a day or two with a sharp attack of influenza.

I treated the little girl's case as one of scarlet fever, isolated her, and took all the usual precautions, but it seems to me more probable that the case was one of influenza, with a scarlatiniform eruption. The two children were taken ill on the same evening, as if from the same cause, and the boy had distinct influenza. Then the nurse isolated with the little girl took influenza—not scarlet fever. Also, it may be noted, that influenza was prevalent at the time, but not scarlet fever. The eruption had all the appearance of that of scarlet fever, and it resembled it in its invasion, its duration, and mode of disappearance, but it was not followed by the desquamation seen in scarlet fever. Perhaps also it showed more on the face than a scarlatinal eruption generally does, and there was very little sore throat; there was no strawberry condition of the tongue, and there was no albumin in the urine. I have seen reports of eruptions in influenza, and some have come under my own notice, but in the cases I have seen the eruption was neither abundant nor well marked; it was of short duration, and never gave rise to any diagnostic difficulties.

St. Heliers, Jersey.

NOTE ON THE OPEN METHOD OF TREATING WOUNDS AFTER SKIN GRAFTING FOR AT LEAST THE FIRST 24 HOURS.

By GEORGE WILLIAM DAVIS, M.D., B.S. DURH.

IN a case in which I had occasion to graft over a granulating surface on the dorsum of the foot seven small grafts from the opposite thigh were placed directly on the surface of the granulation tissue, and instead of the usual dressing of tin-foil, &c., no dressing of any kind was applied, but the foot and leg were protected by a wire gauze meat-cover cleaned with methylated spirit and having an opening made to include the leg. The wound was prevented from becoming dry by dropping saline solution upon its surface. The seven grafts took well and appeared to me to be more vigorous than usual.

It would be quite easy for any of the leading instrument-makers to make wire covers in various shapes suitable for any part of the body and bearing at their upper part a small flat tank having a capacity of four fluid ounces and covered with asbestos to maintain the warmth of the fluid. A tube of flexible metal would enable the saline fluid contained in the tank to be directed on to the wound and a tap would control the rate of flow. A layer of cellulose dressing backed by a piece of mackintosh would be amply sufficient to absorb the overflow. The temperature of the part in winter could easily be maintained by a little arrangement to that end.

Sidcup.

THE TREATMENT OF TUBERCULOSIS UNDER THE POOR-LAW.—At an adjourned conference of representatives of the Poor-law guardians of a number of Surrey unions held at Croydon on Sept. 13th, it was resolved to apply to the Local Government Board for an order authorising the establishment of a joint institution for the treatment of cases of pulmonary tuberculosis at the expense of the rates, subject to two or more Surrey boards of guardians being ready to combine. The decision was arrived at after some discussion, the representatives of some of the smaller boards not being inclined to support the scheme. The clerk to the Croydon guardians presented a report showing that during the year ending on March 25th last there were 251 patients suffering from the disease in eight Surrey Poor-law infirmaries and 51 in receipt of outdoor poor-relief. The report suggested the building of an institution for 50 patients on a site of 10 acres at a cost of some £7500.

Reviews and Notices of Books.

Allgemeine Physiologie: Ein Grundriss der Lehre vom Leben. (General Physiology: An Outline of the Science of Life.) Von Professor MAX VERWORN, Universität Göttingen. Fifth edition, with 319 figures. Jena: Gustav Fischer. 1909. Pp. 742. Price 16 marks; bound, 18 marks.

PUBLISHED first in 1894, this work is now in its fifth edition. It is one of the best works on General Physiology extant, and we hope that in its greatly enlarged form it will soon be translated into English, as was the case with one of the earlier editions. So much progress has been made in nearly all departments of general physiology since the fourth edition was published in 1903 that almost every chapter has had to be overhauled and brought up to date. The great advances in physics, chemistry, and in physical chemistry, not to speak of our rapidly advancing knowledge in regard to the phenomena of life, of stimulation, the relation between asphyxia, fatigue, and narcosis, in our knowledge of the nervous system, and, in fact, in every department of physiology, have caused the author not only to recast the text where necessary, but he has added nearly 80 pages of new matter and 19 additional woodcuts.

The book is so well known as a standard work both for study and reference that it seems almost unnecessary to attempt to review it, but we do so to justify the view that the translation ought soon to arrive. The name of Professor Verworn is itself a guarantee of the masterly quality and accuracy of the work. Naturally, from one who has made such a profound study of the protozoa as Professor Verworn—with his pupils—has done, the chapter on "the Living Substance" is one of peculiar interest—a subject ever old and ever new. The elementary manifestations of life are discussed, as in previous editions, under the three heads of Metabolism, Form and Shape, and Transformation of Energy. As to the general conditions for life, they are discussed from several points of view; first, the conditions at present prevailing on the earth, then the origin of life on the earth, and lastly the story of death.

The fifth chapter is devoted to Stimuli and their mode of action. The various forms of stimuli and their actions on cell life are treated very fully. "Tropisms" are dealt with, and very full accounts are given of chemotaxis, barotaxis, phototaxis, thermotaxis, and galvanotaxis. Nor are the actions of the Roentgen rays and the Becquerel rays omitted.

In the long section devoted to the Mechanism of Life we have one of the most interesting and important chapters in the book. Rightly, the author regards the "investigation of the mechanism of life as the very kernel of the whole of physiology," and while he is loth to confess that our knowledge of the metabolism of living matter is still very imperfect, he sees that this imperfection can only be remedied by a thorough investigation of the processes going on in the cell, for it is the seat of those processes on which the phenomena of life depend. At death everything goes to show that certain changes take place in the living substance, so that in the living cell substances exist which are not to be found in the dead cell—substances which have a very unstable constitution. Life itself depends directly on the existence of this labile complex of atoms, represented by certain protein bodies. For "living proteins," as is known, the author suggests the word "biogen," the word meaning not a single protein, but a group of chemical compounds. The author admits that the "biogen" stands on a completely hypothetical basis, and all that he claims for it is its uncommon instability, which gives it a certain resemblance to explosive bodies. Indeed, similar hypotheses were promulgated by Pflüger, Hermann, Detmar, and others. The author sets forth his view of these "biogens" in large type, and then he gives an elaborate account of the rôle of oxygen in metabolism, leading up to a consideration of the substances which produce asphyxia and fatigue.

The work should be in the hands not only of every physiologist but also of every zoologist. It gives by far the best account we know of the phenomena of life itself and of the conditions on which life depends, and also of the factors, natural and artificial, which modify its phenomena and manifestations. It also contains valuable and suggestive hypotheses to explain or at least illumine some of the mysteries of the mechanism of life. The introductory chapter on the Aim and Objects of Physiological Investigation deals with the problems of physiology, the history of physiological discovery, and the methods of physiological investigations. The subjects of "Vitalismus" and "Materialism" are duly discussed, and their history traced from Hippocrates and the Alexandrian School to the present day. The book, it will be seen, is as comprehensive as it is suggestive.

Action de la Contraction Utérine sur l'Œuf Humain: Phénomènes Passifs de la Grossesse et du Travail. Par le Docteur BOUQUET, Médecin de la Maternité de Brest. Un vol. in 8 grand jésus de 180 pages, un tableau synoptique et 45 planches hors texte. Paris: G. Steinheil. 1909. Prix 10 francs.

Dr. Bouquet maintains that the commonly accepted view, that the bag of membranes usually begins to form when dilatation of the internal os has commenced, is erroneous, and as a result of his investigations puts forward some novel hypotheses on the formation of the fluid wedge of membranes. If, he says, the membranes attached to the lower uterine segment are not so extensible as the tissues of the lower uterine segment themselves, then, as a result of painless uterine contractions occurring during pregnancy, separation of the membranes round the region of the internal os takes place and a potential bag of membranes is formed before the onset of labour. We must confess that we cannot follow his line of argument. It appears to be this: that the uterine contractions, while they make the lower pole of the bag of membranes, when they are inextensible or less extensible than they should be, less convex, render also at the same time the lower pole of the uterus—viz., the lower uterine segment in the neighbourhood of the internal os—more convex, and thus cause a separation of the two structures from one another. If the uterine contractions continue to act on this potential bag of membranes before labour sets in, it becomes more and more developed, further and further separation of the membranes from the lower uterine segment takes place, the pressure upon the separated area, according to the author, becomes increased, and premature rupture of the membranes occurs.

We know of no proof of the assumption the author starts with, that in these cases—admitting for the moment that separation of the membranes takes place in the manner he describes—the membranes are less extensible than the lower uterine segment. This, as he says, is a *sine quâ non* for his argument, but the assumed inextensibility of the membranes in such cases is pure hypothesis, and admits of no proof. By this action of the intermittent uterine contractions of pregnancy, and the consequent separation of the membranes and the prævial portion of the placenta, he explains the occurrence of hæmorrhage in cases of placenta prævia before the onset of labour.

The author further maintains that such a condition occurs about three times in every eight cases of labour, and points out certain physical signs by which he considers that such a bag of membranes, that is to say, one formed before the onset of labour, can be recognised. It is said to interfere with the

descent of the presenting part, the dilatation of the cervix takes place slowly, the cervix is often rigid, and the presenting bag of membranes tends to be flattened and continuously tense. Dr. Bouquet does not agree with the saying of Madame Lachapelle, who said: "Qu'elle ne craignait pas les eaux plates, qu'elles étaient toujours d'un prognostic favorable."

Since the author believes that the bag of membranes formed in the manner he describes recedes during a contraction of the uterus, he lays great stress on the position of the patient during the period of dilatation of the cervix. The best position he considers to be one in which the vertical axis of the patient's body makes an angle of 30 degrees with the horizon. In such a posture, so long as the membranes are extensible, the bag of waters is formed in the normal manner, and when the membranes have ruptured the weight of the fœtus is able to come into play and so to assist in the dilatation of the cervix. When the membranes, however, are inextensible and the bag of waters is formed in the unfavourable manner described by the author, the weight of the fœtus cannot, according to him, be of any avail. As we have said, the truth of the whole hypothesis depends upon the accuracy of the author's assumptions, and these appear to us to be very doubtful.

Archives of the Middlesex Hospital. Clinical Series, No. II. (being the Sixteenth Volume of the Archives). Edited by W. SAMPSON HANDLEY and VICTOR BONNEY. London: Macmillan and Co. July, 1909. Pp. 58.

THIS number contains: 1. A drawing of a case of Gunshot Wound of the Hand, by the late Mr. T. W. Nunn. 2. A case for Diagnosis, possibly an Undescribed Manifestation of the Rheumatic Poison, with a short account of a case of Rheumatic Thrombosis of Systemic Veins, by Dr. W. Pasteur. 3. A case in which an Enlarged Prostate was Removed through an Inguinal Cystocele, by Mr. J. Bland-Sutton. The patient had an enlarged prostate and a large scrotal swelling, which proved to be a sausage-shaped tumour of the spermatic cord, together with a cystocele and an epiplocele. During the operation the bladder was accidentally opened, and the opening thus made was utilised for the removal of the prostate. 4. The Treatment of Ascites by Continuous Drainage into the Tissues, by Dr. W. Essex Wynter. This interesting paper gives details of seven cases treated by the ingenious method suggested by Dr. Wynter of draining the ascitic fluid into the patient's subcutaneous tissues. He finds that the procedure is of decided benefit to the patient provided accumulation of fluid is the leading feature of the case, but that the presence of marked jaundice or other indication of serious organic change in important organs offers a bar to its performance. The site originally chosen of drainage through the femoral ring affords the greatest advantage as regards drainage. 5. The Rationale and Technique of Infusion, by Dr. W. S. Lazarus-Barlow. Evidence is brought forward to show that the ordinary method of infusion often fails because too little fluid is given. Dr. Lazarus-Barlow recommends repeated infusion or continuous infusion extending over several hours, as much as seven or eight pints being given in all. He also recommends the use of sugar solution instead of saline, suggesting a 2¼ per cent. solution of glucose. 6. A case in which a Cyst of the Broad Ligament became Infected by the Bacillus Typhosus, by Mr. T. H. Kellock. 7. Clinical Notes on Diseases of the Nervous System, by Dr. H. Campbell Thomson. 8. Some Effects of Erupting and Diseased Teeth on the Lymphatic Glands, by Mr. W. S. Nowell. 9. Cæsarean Section, To-day and Yesterday, by Dr. Comyns Berkeley. This paper contains an interesting study of the history of and indications for this operation. 10. On the Nature and Structure of De Morgan's Spots (Senile Telangiectases), by Mr. W. Sampson Handley. He finds that the skin in which they occur shows atrophic change, and that they represent an invasion of the epithelial layer by connective tissue—the newly formed capillaries in which undergo ectasis owing to the lack of support.

Graphic Methods in Heart Disease. By JOHN HAY, M.D. Vict. and Liverp., M.R.C.P. Lond., Assistant Physician, Liverpool Royal Infirmary. With an Introduction by JAMES MACKENZIE, M.D. Edin., M.R.C.P. Lond. London: Henry Frowde, Oxford University Press; Hodder and Stoughton. 1909. Pp. 184. Price 7*s.* 6*d.*

MAINLY owing to the enthusiasm and excellent work of Dr. James Mackenzie the graphic methods of investigating the disorders and diseases of the heart have recently received considerable attention. Numerous avenues of research have been opened up and many interesting results have been recorded, and when care is taken to avoid errors due to defective apparatus the tracing of any movement of the circulation obtained by instrumental means remains as a true and permanent record of an actual event. Further, when sufficient experience has been gained in order to correctly interpret the tracings, valuable information is thereby obtained. Considerable difficulty is at first encountered in obtaining satisfactory records, and it is in order to aid those who wish to adopt the "graphic methods" that this book has been written. Dr. Hay gives a good account of two of the many instruments which have been devised for recording the movements of the heart and the pulsations in the arteries and veins—namely, (1) a modification of the Dudgeon sphygmograph, named the "clinical polygraph"; and (2) the "ink-writing polygraph." The deductions to be drawn from the tracings are given in detail. The normal records are first discussed, and the records obtained from the radial artery at the wrist, from the apex beat, and from the jugular vein are minutely described and analysed. To read a "phlebogram" correctly requires much care and practice, but when the necessary technical skill is acquired and the cardinal principles understood a large field of study is opened to the investigator which will well repay the time and trouble expended. For those who wish to enter upon this field of study we can cordially recommend the work now before us.

Allbutt's System of Medicine. Second Edition. Vol. IV. Part 2: Nose, Throat, and Ear. London: Macmillan and Company. 1908. Pp. 566. Price 25*s.* net.

THE first portion of this volume is devoted to Diseases of the Nose. The section on the more simple pathological changes, which are dealt with in the first 36 pages, chiefly by Dr. Greville Macdonald, presents no striking novelties, but we are interested to see that Dr. Macdonald considers that so-called croupous rhinitis is not by any means necessarily a consequence of the presence of the Klebs-Löffler bacillus. Dr. Ernest B. Waggett follows with descriptions of Malformations and Diseases of the Septum, and Dr. Herbert Tilley with articles on Rhinoscleroma, Glanders, and Foreign Bodies in the Nose. The next sub-section on Nasal Neurosis, by Sir Felix Semon and Dr. P. Watson Williams, is somewhat vague. The article on Diseases of the Accessory Cavities by Dr. Tilley is ably and clearly written. Hypertrophy of the Pharyngeal Tonsil, by Sir Felix Semon and Dr. Watson Williams, concludes this section.

The account of Diseases of the Pharynx, which forms the second portion of the book, is also by Sir Felix Semon and Dr. Watson Williams; it is beautifully illustrated with lithographs, and we would especially draw attention to the extremely interesting plates, coloured and otherwise, of

rhinoscleroma, a condition but rarely seen in the British islands, and one, therefore, of which it is particularly necessary to possess such an admirable description as is here given. Section III., on Diseases of the Larynx, is by the same authors as the last section, and this part also is beautifully and profusely illustrated, chiefly by drawings from Dr. Watson Williams's brush. This section fully comes up to the standard which was to be expected. Next are articles on the Pharynx and Larynx in Acute Specific Fevers and Direct Laryngoscopy, the former by Dr. Watson Williams and the latter by Dr. Waggett. This portion of the book concludes with an article on Foreign Bodies in the Upper Air and Food Passages and Diseases of the Trachea. The last part of this volume is devoted to Diseases of the Ear. Dr. Thomas Barr details the Methods of Examination and General Semeiology, and Dr. W. G. Porter discusses General Therapeutics. This is followed by articles on Diseases of the External Ear and Tympanic Membrane, by Mr. Hunter Tod; on Acute Inflammation of the Middle Ear, by Dr. J. Dundas Grant; on Chronic Suppuration of the Middle Ear, by Dr. W. Milligan; on Intracranial and Intravenous Affections Complicating Ear Disease, by Mr. Charles A. Ballance; on Eustachian Obstruction and Chronic Middle-ear Catarrh, by Dr. E. C. Baber; on Otosclerosis, by Dr. Albert A. Gray; on Affections of the Auditory Nerve and Labyrinth, by Dr. P. McBride; and on Deaf Mutism, by Dr. J. Kerr Love.

This is an extremely creditable volume, every part of which, with no noteworthy exception, is well done, but we do not think that it is all of equal value as a book of reference, and this refers, perhaps, more especially to the last section—that on Diseases of the Ear. But as part of a general system of medicine it fulfils its object and is well up to the high standard set by the rest of the work.

LIBRARY TABLE.

Infant Feeding: A Practical Guide to the Artificial Feeding of Infants. By J. S. FOWLER, M.D. Edin., F.R.C.P. Edin., Physician to the Royal Hospital for Sick Children, Edinburgh, &c. London: Henry Frowde and Hodder and Stoughton. 1909. Pp. 230. Price 5*s.* net.—It is doubtless a fact that greater attention has been paid in recent years than previously to the subject of feeding infants, and of the importance of the study there can be no two opinions. Nevertheless, we cannot but marvel at the number of books on this very limited subject which continually appear. The one before us is a reprint of lectures delivered in connexion with the class of diseases of children in the University of Edinburgh and to members of the post-graduate courses there. It has the merits of brevity and lucidity. The methods advocated are simple and practical. There are a good many illustrations, chiefly of apparatus and of the curds obtained from different modifications of milk. On the principle that "Segnius irritant animos demissa per aurem, Quam quae sunt oculis subjecta fidelibus," these may perhaps be of use to readers. The type and get-up of the book are good, but we feel that the material might have been compressed into rather less space without loss, while the utility of the work would be increased if it could be sold at a lower figure.

House-Drainage, Sewerage, and Sewage Disposal in Relation to Health. By LOUIS C. PARKES, M.D., D.P.H. Lond., Consulting Sanitary Adviser to H.M. Office of Works, &c. London: H. K. Lewis. 1909. Pp. viii.-142. Price 2*s.* net.—This little book contains a series of lectures delivered at the University of London under the trust created by the will of the late Sir Edwin Chadwick, K.C.B., of whose life a short account is given in the introductory section. The lectures deal first with the causation of disease by excretal refuse—the conveyance of infection by dust, air, flies, water, and so forth—then with the various methods of removal of excretal matter, both the so-called conservancy methods and the modern arrangements for drainage and sewerage, and lastly with the disposal of sewage by means of precipitating tanks, land treatment, and artificial bacterial beds. The whole forms a very complete account of the subject dealt with, written in a clear and interesting style and showing a knowledge of recent developments as well as of established principles. The book may be commended to candidates for the D.P.H., as well as to others who are in search of practical guidance in this important subject.

The "Nauheim" Treatment of Diseases of the Heart and Circulation. By LESLIE THORNE THORNE, M.D., B.S. Durh. Third edition. London: Baillière, Tindall, and Cox. 1909. Pp. 82. Price 3*s.* 6*d.*—The third edition of a work requires but little explanation from the reviewer. That a course of baths and gymnastics, as carried out at Nauheim or elsewhere, may be followed by considerable improvement in certain cases of cardiac disorder is undoubted, although the mechanism and explanation of the action of these measures are much disputed. In this volume the methods of administering the "Nauheim" treatment are well described, so that any practitioner wishing to carry out the treatment in the patient's own house will find in the pages of Dr. Thorne's book all the information that is required. The selection of cases suitable for treatment is discussed and examples of the results which may follow are recorded. In this edition the chapters on the preparation of the baths and the administration of the exercises have been revised and the classification of cases suitable for treatment has been somewhat altered.

Synoptic Chart of Cardiac Examination. London: John Bale, Sons, and Danielsson. Price 2*s.* 6*d.* net.—This consists of a chart representing the front of the chest with openings cut over the valvular areas and along the borders of the right and left margins of the area of cardiac dulness. By means of an ingenious device the principal physical signs of the various forms of cardiac disease are indicated by symbols which can be made to appear at these openings, so that the student can see at a glance the conditions which are found in connexion with valvular affections and other morbid states of the heart. The chart has been arranged by Dr. J. D. Comrie, assistant pathologist, Royal Infirmary of Edinburgh. A small pamphlet on the symptoms and physical signs of cardiac disease accompanies the chart.

JOURNALS AND MAGAZINES.

Ophthalmology. Edited by H. V. WÜRDEMANN, M.D., and a large Editorial Staff. Vol. V., No. 4. July, 1909. Seattle: Metropolitan Press. Price 6*s.* 6*d.*—The original articles in this number are 12, and there are numerous abstracts from English and continental works as well as reviews of books. Amongst the more important original articles are: 1. Amblyopia or Anopsia, its Nature and Treatment, by A. Alison Bradburne of Southport. 2. The Restoration of Vision in Strabismus, by the same writer. This latter is an interesting subject, and the author gives some valuable suggestions. 3. Metastatic Carcinoma of the Choroid, a Critical Study with Case Report, by George F. Sukers, M.D., and Lorenzo N. Grosvenor, M.D., Chicago. The chief points noticed are that it usually occurs between the ages of 30 and 40 years, is commonly bilateral and proves rapidly fatal, that the blood-vessels are frequently involved, that the tension is not uncommonly minus, that the retina is frequently extensively detached, and that the tumour cells rarely invade the retina

or disc but often encircle the disc. 4. A Case of Tubercular Iridocyclitis with Organised Exudate in the Anterior Chamber, by J. W. Sterling, M.D., of Montreal, with a Pathological Report by F. T. Tooke, of Montreal. 5. Metastatic Gonorrhœal Conjunctivitis: the Demonstration of the Gonococcus in Smear and Culture, by Hamford McKee, B.A., M.D., Montreal. The case, which is well reported, appears to show that metastatic conjunctivitis is not due to a mixed infection, and is not caused alone by the gonotoxin, but that it is a true metastasis of the gonococcus. 6. Nodular Opacities of the Cornea, by W. Zentmayer, M.D., Philadelphia. 7. Refraction for Men who Shoot, by Jesse N. Reeve, M.D., Washington, D.C.

The Quarterly Journal of Microscopical Science. Edited by Sir RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SIDNEY J. HICKSON, M.A., F.R.S., and E. A. MINCHIN, M.A. With lithographic plates and text figures. New series, No. 212 (Vol. LIII., Part 4). July, 1909. London: J. and A. Churchill. Price 10*s.* net.—The memoirs contained in this number of the above journal are the following: 1. Studies on Ceylon Hæmatozoa, the Life Cycle of Trypanosoma Vittatæ, by Muriel Robertson, M.A., Carnegie Fellow in the University of Glasgow, with two plates and four text figures. This form of trypanosoma is found in the soft Emryda vittata. The living trypanosome is pyriform, with a well-developed frilled membrane. The intermediate host is a leech, Glossiphonia, which attaches itself to the less exposed surfaces and corners of the body of the tortoise. 2. The Entry of Zooxanthellæ into the Ovum of Millepora and some Particulars concerning the Medusæ, by Joseph Mangan, M.A., A.R.C.Sc.I., Honorary Research Fellow of the University of Manchester. 3. Physiological Degeneration and Death in Entamœba Ranarum, by C. Clifford Dobell, Cambridge, Balfour Student in the University. The author contests, and gives reason for contesting, the statement of Weismann that the Protista are immortal. 4. Observations on the Amœbæ in the Intestines of Persons Suffering from Goitre in Gilgit, by Robert McCarrison, M.D. R.U.I., Captain, I.M.S., with 24 text figures. The author attributes the disease to the action of a globular amœba. 5. Peripatus Ceramensis, *n. sp.*, by F. Muir and J. C. Kershaw, with a plate. 6. On the Eggs and Instars of Scutigerella (*sp.?*), by F. Muir and J. C. Kershaw, with text figures. The species of myriapod here described is common in Amboina, Ceram, and in all the Moluccas, and is probably the orientalis. 7. The Development of the Parasite of Oriental Sore in Cultures, by H. Row, M.D. Lond., D.Sc. Lond., with a plate. 8. The Structure of Trypanosoma Lewisi in Relation to Microscopical Technique, by E. A. Minchin, Professor of Protozoology in the University of London, with three plates; a very full and interesting memoir. This number contains the index to Vol. LIII.

Annals of Ophthalmology. Edited by WILLIAM T. SHOEMAKER, M.D., assisted by C. W. PARKER, M.D. Nos. 2 and 3, April and July, 1909. St. Louis, Missouri, U.S.A.: Jones H. Parker. Price 18*s.* per annum.—These numbers of this important ophthalmological journal contain several valuable articles, amongst which we may notice in the April number: Dr. Marcel Rollet of Blois on the Influence of the Eye on the Ear under Normal and Pathological Conditions. Dr. Rollet's attention was drawn to this subject by the circumstance that in a patient who came under his care the bright light of an ophthalmoscopic mirror when directed upon the eye occasioned loud buzzing sounds in the ear. Other cases are quoted: one is referred to in which a deaf girl recovered her hearing after double iridectomy was performed. Carl Schulin contributes an article on Size *versus* Distance in Test Types. The Use and Limitations of Atropin in the Correction of Heterophoria is the title of an article by Dr. Gilbert D. Murray, Dr. Shoemaker describes and gives a plate which exhibits the disc and fundus of an eye presenting the rare condition of an optico-ciliary vein. Dr. Clarence Loeb of St. Louis, Missouri, continues his article on Hereditary Blindness and its Prevention by giving references to 496 cases of hereditary blindness.—In the July number Dr. Oscar Williamson of Washington, D.C., gives an account of the Ocular Therapy of the Ancient Egyptians, the earliest treatise on which dates back to the fifteenth century before Christ. Dr. Campbell Posey of Philadelphia gives the histories of two cases of Choroidal Hæmorrhage following Operations on the Globe, with some pathological observations. Dr. Adams Shumway of Philadelphia reports a case of Optic Atrophy in Syringomyelia; Congenital Cataract with Unusual Atrophy of the Iris from Secondary Glaucoma. Dr. W. Zentmayer of Philadelphia reports two cases with illustrations of Hole at the Macula. Dr. J. Herbert Claiborne of New York gives a chart for the axis of astigmatic cases. Both numbers contain numerous abstracts from English and continental journals.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXIX., No. 2.—In this part Dr. M. Camis deals with the action of guanidin on muscle, and finds that this substance acts by combining with two different substances of the muscle, one of which is responsible for the twitches which it sets up, and the other for the changes in contractility. Messrs. Plimmer, Dick, and Lieb record metabolic experiments on the origin of uric acid. They find that guanin and xanthin give practically no rise in uric acid output. Large quantities of purins in herring roe increase its output, but the excess of uric acid only corresponds to about one-tenth of the total purins ingested. Liebig's extract of meat greatly increases the uric acid excreted, more than half of the purins being converted into uric acid. The dissociation curve of blood is the subject treated by J. Barcroft and M. Camis, a highly technical but important paper, which is followed by another on an allied subject—the dissociation curve of hæmoglobin—by J. Barcroft and Ff. Roberts.

PUBLIC VACCINATORS AND THE LOCAL GOVERNMENT BOARD.—At the last meeting of the Bodmin (Cornwall) board of guardians a letter was read from the Local Government Board in reference to the alleged irregularities in vaccination reported against a public vaccinator. The public vaccinator had explained the matter, but the Local Government Board stated that the explanation was not satisfactory, and added that the medical man in question should not be allowed to act as public vaccinator. The Board asked the guardians, therefore, to accept the resignation which the medical officer had tendered.

BLIND TEACHERS FOR SCHOOLS.—The Board of Education has issued the syllabus of the preliminary examination of blind candidates for the elementary school teachers' certificate, 1910. The examination for the admission of blind candidates to training colleges for the blind will be held in the summer of 1910 at the Royal Normal College for the Blind, Upper Norwood, S.E. Application for admission to the examination must be made to the Board of Education before May 1st. Candidates who have not been pupil teachers must adduce proof of being over 18 years of age on Oct. 1st, 1910, and a medical certificate that they are too blind to be able to read ordinary school books used by children. Candidates employed in elementary schools must obtain from the managers a certificate of their physical fitness for the profession of teachers; those not so employed must produce a medical certificate to the same effect.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS, BUDAPEST, AUGUST 29TH TO SEPT. 4TH.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Budapest, Sept. 10th.

ALTHOUGH in my last letter I was able to announce the formal closing of the Congress I propose to send further details of the events of the week.

The Reception at Court.

On Wednesday, Sept. 1st, the members of the Congress were received at court by the Archduke Joseph. The invitations were mainly given to men, though exceptions were made in favour of a few qualified lady practitioners. The royal palace, as may be gathered by the illustration (see THE LANCET, Sept. 11th, p. 802), is a most imposing edifice built on the crest of a cliff that rises from the right bank of the Danube on the Buda side of the river, the really beautiful and picturesque part of Budapest. The Pest side of the river is entirely modern, its streets are broad and straight, there are trees and electric tramcars, big cafés, and spacious houses. But there is nothing characteristic about these buildings; they are just what might be seen in Manchester or the modern parts of Munich. Buda, on the contrary, is ancient, and the conformation of the site adds to the picturesque appearance of the buildings. A portion of the palace itself may lay claim to a respectable age, for it was begun in 1748 by Maria Theresa. Nevertheless, the greater part of the edifice is quite modern, and is so vast that it contains more than 800 rooms. It is a stiff up-hill drive by a zig-zag road to reach the palace, and here on the occasion of the reception there were numerous police, mounted and on foot, to keep the carriages in proper file and conduct them not to the monumental entrance but to a passage through various small inner courts. This deflection somewhat destroyed the effect of the approach, but the steps when reached were very stately, and the body guard of halberdiers which lined the sides produced the due impression. The halberdiers must be all picked men. They were young, handsome, tall, and slim men. They wore dark-red tights and tunics whose broad steel clasps shone and gave the appearance of armour. Their belts and straps were thickly jewelled with turquoises and other stones. On their heads were cone-shaped steel helmets with one aggressive, impertinent-looking plume, which, rising some ten inches straight above this pointed headgear, was silhouetted against the broad blade, chased and inlaid, of the halberd. They made a most fascinating and fantastic spectacle, plunging us back into the Middle Ages, and imparting a veritable air of romance to the scene. After passing and admiring this picturesque defile we emerged into a drawing-room where, as the crowd increased, we soon became closely packed and very hot. Some of us discovered that there was a circuitous way by which other and larger *salons* could be reached where the crowd was not so dense, and after a while some doors were opened and we were able to penetrate a suite of *salons* which as yet had been unoccupied and where the air for a while was deliciously cool and fresh. In a short time, however, these were as hot as the other *salons*, and I could not find any trace of ventilation either natural or mechanical. Then, and though we endeavoured to keep ourselves cheerful by talking to each other, it began to dawn upon some impatient souls that if it was flattering to be received at Court yet, in the absence of ladies, music, and refreshments, the proceedings might be very dull. But before this feeling became general doors opened and waiters entered carrying trays heavily laden with exquisite sandwiches of caviar, smoked salmon, and *pâté de foie gras*, and trays followed covered with glasses of iced champagne. The denseness of the crowd, however, made the matter of service very difficult, and many persons gasping with heat never managed to obtain a cooling draught. Then the Archduke Joseph entered and, taking his stand in one of the larger *salons*, was introduced to various members of the Congress. He could not, however, have exchanged words with many present or have got any real idea of the *personnel* of his guests. The system adopted at Madrid at the International Congress in 1903 seemed to me preferable. At Madrid a different room at the reception was allotted to each nationality. The Queen Regent and King Alfonso walked through these rooms, stopping to speak in the respective language a few words to some of the members present in each room. There was no crowding, and the occasion was a very pleasant one, for it was probably the only time during the entire Congress that each nationality met *en bloc*. The Royal reception in Madrid took place, moreover, in the afternoon, and no one suffered from heat and thirst, though we were more numerous than at Budapest. For after the Spanish Queen Regent and King had passed the whole Congress in review they descended into the Palace Gardens, and we followed into the open air. This might have been managed at Budapest. In front of the palace of Buda there are a very extensive terrace and garden which command a magnificent view over the city and country and the Danube, as it winds through and separates the two towns. It was a fine night and the moon shone gloriously upon the glittering scene as many of us were returning home on foot, snatching the opportunity for reviving from the airless heat of the reception.

Receptions by the Secretary-General and the Hungarian Government.

On the Thursday evening the Secretary-General of the Congress, Dr. E. de Grósz, gave a reception at the Royal Pavilion in the Town Park, which was very numerously attended, though there were many dinners being given the same evening by presidents of the various sections to members of those sections. The most successful of all the official entertainments was that given in the name of the Hungarian Government by the Minister of Public Worship and of Public Education, Count Albert Apponyi. This was held at the Park Club on the Friday evening. One reason of its success was the fact that the number of guests was limited. We were several hundred, but we were not several thousand. The club has extensive terraces that overlook its gardens and the park beyond. The garden and terraces were illuminated, the drawing rooms were not overcrowded, and in the lower apartments an excellent supper was served without any of the appalling troubles and crushing usually associated with such functions. It was forcibly brought home to all who were present, and who were enjoying themselves, that entertainments to be successful at the Congresses must be limited as to the number of guests, though no one was able to suggest how this was to be managed.

The Closing Ceremony.

The closing ceremony was the same as that for the opening of the Congress, only the crowd was less. It was held in the same great municipal festival hall, the *Redoute*. There was the same major-domo in his resplendent Hungarian uniform, and there were the Municipal Guards on the steps of the monumental stairs, only they were not so numerous. Some of the members of the Congress appeared in dress clothes, though the ceremony was held at 10 in the morning, others donned full uniforms with stars and orders, but a far greater number contented themselves with a simple frock coat. There were ladies present, too, but not so many, nor was there as various an assortment of sensational toilettes as graced the opening function.

The proceedings were opened by the President of the Congress, Professor CALMAN MÜLLER, who read a despatch of sympathy with, and approval of, the objects of the Congress from the Austrian Emperor. King Manuel of Portugal also telegraphed to acknowledge a despatch which had been sent to him from the opening sitting recalling gratefully the fact that the previous Congress had been held at Lisbon, and to express his gratification at having been thus remembered.

The GENERAL SECRETARY then read out the decisions in regard to the various prizes offered. The first prize of 1000 Austrian crowns for the best work on ophthalmology was not awarded. The Paris prize of 3000 francs established at the Thirteenth International Congress of Medicine was awarded to Professor Bordet of the Belgian Pasteur Institute for his work on Immunity. The Moscow prize of 5000 francs was awarded to Professor Hertwig of Berlin for his work on Embryology. The Lambal prize for Otology was divided between Dr. A. A. Gray of Glasgow for work on the labyrinth of reptiles, birds, and mammals, and Dr. Neuman of Vienna. A new prize of 3000 Austrian crowns offered by Professor Politzer of Vienna will be given, it was announced,

at the International Congress of Otology, which is to be held at Boston in the United States of America during the year 1912. Finally, there is to be a prize of 2500 francs for the best work on Military Hygiene which is to be presented to the Seventeenth International Congress of Medicine by Dr. Livingston of New York.

The Resolutions of the Congress.

The SECRETARY now read out the 15 resolutions passed in the sections. It was difficult to hear what he said and the approbation of the Congress of resolutions which were not formally put to the vote cannot be considered as more than a mere act of politeness. The greater half of those present did not understand what was occurring, no one spoke or challenged any point, and there was not even the usual show of hands. Much more interest was manifested when the question of the next place for the meeting of the Congress was brought forward and the explanations were given as to the alteration of the date, together with the formation of a Permanent Commission to deal with the Congresses. But with these subjects I dealt in my last letter.

The PRESIDENT then rose to close the Congress. He alluded to the illness by which he had been struck down on the first day and which had prevented his assisting at the opening of the Congress. He then described how three years ago they had begun to prepare for the Congress and thanked the various national committees for the very effective help they had given. He expressed his gratitude to the Hungarian Government and the municipality of Budapest for providing the material means which assured the success of the Congress, and continuing said: "Permit me also to express our sentiments of keen gratitude to the press to the native and to the foreign journals, to the political press, and to the medical press. The press has supported our efforts and displayed a cordial interest, while giving us vigorous help in the accomplishment of our task. As on all similar occasions, we have not been spared unpleasantnesses of a personal character and others of a more serious nature; we had to pass onwards without heeding them. It is you, gentlemen, you only, who have the right to judge the results of our labours and to say if the Congress has succeeded, and in what measure. It is due to your coöperation that the Congress maintained—and that is an incontestable fact—the high level of modern science. Gentlemen, I have not the intention of attempting to in any way modify your impressions, but I should like to sum up the final message of our gathering. I am convinced that you have observed among us the workings of a civilisation which is doubtless still young, but a civilisation which is animated by a firm will and determination to overtake the lost time rapidly, so as to be able to march forward in step with the oldest civilisations."

The Procession of Nationalities.

When the applause had died away we proceeded to repeat, as at the opening ceremony, the alphabetical procession of nationalities. Professor UHTHOFF, for Germany, devoted himself to complimenting the lady members of the Congress. Dr. THAYER, of Baltimore, spoke in English on behalf of the United States of America, and alluded to the erection of a statue to Washington and the beautiful words pronounced on that occasion by Count Apponyi which had established a firm link between the United States and Hungary. Austria was represented by Professor HORITZA, who thought that the untiring work done by the general secretary would serve as a model to all congresses. The Brazilian and Bulgarian delegates followed. No one answered for Chili or Cuba, but Professor SALAMONSEN for Denmark made a hit by summing up the position in three words, *merci, adieu, au revoir.* Professor A. DE SIMONENA from Spain having spoken the Congress settled down to enjoy a good speech from the Dean of the Paris Faculty of Medicine and was not disappointed. Professor LANDOUZY, after gracefully and with obvious sincerity complimenting his hosts, declared that Hungary by the magnificent and successful organisation of the Congress had placed itself among the van of the nations. The work of the Congress had thrown light on many dark corners and difficult problems, and revealed the art of medicine as one of the greatest forces in securing social reform.

Dr. F. W. PAVY for Great Britain pointed out the difference between the closing and the opening meeting, the difference between expectation and realisation, and declared that owing to the excellence of the organisation great benefits must accrue from the Congress. Both the scientific and the social sides had been most successful. He only hoped similar success would crown his country when the Congress met in London. The Greek representative being absent, Dr. MARAGLIANO spoke for Italy.

Professor NAKAYAMA said a few words in German on behalf of Japan, and Dr. QUEVEDO Y ZUBIETA spoke for Mexico. The representative of Monaco was absent, but Dr. DEBAYLE for Nicaragua spoke at some length. Professor UCHERMANN for Norway, Professor WENCKEBACH for Holland, Dr. DE MATTOS for Portugal, Professor DE OTT for Russia, Professor HENSCHEN for Sweden, Dr. BOURGET for Switzerland, ZOËROS PACHA for Turkey, and Professor A. C. MAGGIOLA for Uruguay made speeches all on the same note of congratulation.

Dr. R. BLONDEL then said a few words on behalf of the International Association of the Medical Press, whose help in the organisation of the Congress was now officially accepted. He promised that the press would do its best to propagate the truth and bring to those who were not present some knowledge of what had been done. He thanked the organisers for having facilitated the work of the press. The Congress was over, but the friendships it had created would last.

The Mayor of BUDAPEST expressed his satisfaction at having received so many distinguished representatives of science. The debates would benefit millions of people. Great towns brought into existence great evils which the medical profession had to combat. In the name of the municipality and the people of Budapest he wished them farewell and thanked them for the useful consequences the Congress was sure to produce.

Then Count APPONYI rose on behalf of the Hungarian Government to bid the Congress good-bye. He had prepared no speech, but said that he would take Professor Salamonsen's admirable phrase as his thesis, "*Merci, adieu, au revoir.*" He thanked the members of the Congress especially for their display of scientific knowledge, and declared that the medical profession in Hungary would persevere under the light given them and would maintain in their hearts the flame which had been kindled. With regard to the word *adieu*, all that was elevated and good was of God, and he consigned them all to God's keeping. But how was he to say *au revoir?* The Congress would meet again in London, where he had no business. His presence at the Budapest Congress was an accident. But if he could not see them again in person and in London, ideas and sentiments were ever visible; by the work they would accomplish he would continue to see them, for his Government would always study the humanitarian aspirations of the medical profession. "We will never cease to see you, so I will say, '*Merci, adieu, et nous vous verrons toujours.*'"

Professor CALMAN MÜLLER, as President, rose when the applause had subsided, and declared the Congress was now closed.

Slowly the members left the great Municipal Festival Hall, many lingering on the steps or forming groups outside for a few final and friendly words and the exchange of many good wishes.

THE SECTIONS.

SECTION II.—PHYSIOLOGY.

Dr. NICOLAIDES (Athens) made a communication on

The Cause of Rhythmical Movements under Constant Stimulus, especially in Rhythmical Breathing.

He said that rhythmical movements in animate nature must be considered in connexion with the fact of the refractory stage, as has been already done long ago in the case of the typical representative of all rhythmical movement—namely, the heart. In the case of the rhythmical action of the respiratory centre, the cause is to be found in itself. This activity is, indeed, modified by various centripetal impulses, but its rhythm does not depend on peripheral stimulation, for after eliminating both the pulmonary branches of the vagus the rhythmical action of the respiratory centre does not cease. The excitation of the respiratory centre is autochthonous, automatic. The stimulant which acts on the respiratory centre is the stimulant proceeding from the blood, the blood stimulant, which is constant. The question is, Why, under the influence of a constant stimulus, the blood-stimulus, do we get, not a constant, but a

rhythmical result? Experiments have proved that just as in the heart the rhythm is caused by the refractory periods of its elements, so also the refractory periods of the respiratory centre are the cause of rhythm in the breathing movements. For instance, if the breathing of a dog is retarded by the simultaneous division of the upper paths and the vagi, and if the central end of one vagus is stimulated, it is observed that at the beginning of expiration the stimulus produces little or no result. But the farther the expiration proceeds the easier is it to establish the inspiration. There exists, therefore, at the beginning of expiration an absolute stage which gradually becomes relative. The same thing is observed in the case of a stimulus applied to the central end of the vagus during inspiration. Therefore, the rhythmic action of the respiratory centre is to be explained by its capacity for periodically admitting and excluding equal and constant stimuli.

SECTION VII.—SURGERY.

Dr. A. CECCHERELLI (Parma) read a paper on

The Diagnosis and Treatment of Mediastinal Tumours.

The gist of his remarks was that mediastinal tumours are possible of diagnosis, but only by the use of all our modern methods, foremost amongst which we must put radioscopy. No means of investigation must be neglected, because it is only on an accurate and positive diagnosis that the decision to perform a difficult and dangerous operation can properly be based, an operation which too often results in a speedy recurrence, the tumour or the infected glands not having been completely cleared away. Tumours of the anterior mediastinum are most promising to attack surgically when they spring from the bones, for the invasion of the mediastinum is only secondary. Surgical intervention is possible in tumours of the posterior mediastinum if the tumour is œsophageal, for if it is limited to three centimetres in extent it can be resected and the cut ends of the œsophagus brought together, whilst if it is more extensive the two ends can be brought up to the wall of the thorax or they can both be sutured and the lower end invaginated into the stomach, a gastrostomy being subsequently performed, or Roux's plastic operation on the œsophagus can be performed. If the posterior mediastinum has to be reached it is better to do so by the transmediastinal route, and it is better to approach the tumour, especially if it is low down, from the right side of the thorax. As regards the incision a longitudinal one is to be preferred, and a transverse one may be added to form a flap, with the resection of a certain number of ribs in order to allow the surgeon a better view of the field of operation.

SECTION VIII.—OBSTETRICS AND GYNÆCOLOGY.

Dr. KRÖNIG (Freiburg in Breisgau) read a paper on the

Use of Anæsthetics in Midwifery and Gynæcology.

He proposed three points for discussion—namely, (1) the utility of lumbar anæsthesia in midwifery and gynæcology; (2) the utility of anæsthetic combinations (*Mischnarkosis*); and (3) the utility of scopolamin for producing drowsiness (*Dämmerschlaf*) during labour. With regard to the first point, he said that attention to every practical detail, even the smallest, was of more importance in lumbar anæsthesia than in any other method of producing insensibility to pain. As Mr. Barker had already pointed out, the specific gravity of the solution injected was of quite exceptional importance. The best solutions for use in laparotomy had, at a temperature of 38° C., a specific gravity under 0 999, which was the specific gravity of the cerebro-spinal fluid. Dr. Krönig supplied particulars of a total of 1700 cases of anæsthesia produced by stovain. Since the dose of stovain has been reduced to seven centigrammes as a maximum there has been no death during anæsthesia in a series of 1400 consecutive cases, neither has any embarrassment of the respiration been observed. Although certain after-effects, especially headache, occurred in 38 per cent. of the cases, intraspinal anæsthesia produced but little effect of an unfavourable kind on the heart and lungs, a circumstance which was so important for the safety of the patient that Dr. Krönig preferred intraspinal anæsthesia to inhalation anæsthesia in severe and long operations, and especially in laparotomy. In all minor operations, however, the use of inhalation anæsthesia ought to be continued. With regard to the second point—the utility of anæsthetic combinations—he said that a combination of chloroform and ether ought in every instance to replace pure chloroform or pure ether as an anæsthetic, and the combination of anæsthetics might be further extended by giving an injection of scopolamin and morphine before the inhalation. It was only through the use of combinations of anæsthetics becoming general that the dangers of anæsthesia by inhalation could be reduced to a minimum. With respect to the method of administering an anæsthetic by inhalation, preference ought to be given to those forms of apparatus which gave the best quantitative admixture of the anæsthetic in the air which the patient respired. With regard to the third point—the utility of scopolamin for producing drowsiness during labour—he said that in women who were sensitive or of nervous temperament or neurasthenic a tedious and painful labour often brought about long-continued and not unimportant states of nervous exhaustion. In those cases it was desirable to reduce the woman's suffering to a minimum by a method which was not injurious to either her or the child. Since Steirbüchel had recommended the scopolamin-morphine treatment for this purpose Dr. Gauss has been working in Dr. Krönig's clinic on specially introduced systems of testing the state of consciousness at any given time, and has greatly improved the methods for the production of the drowsiness in question. On the basis of a clinical material amounting at the present time to 2000 deliveries it might be stated that the production of drowsiness by scopolamin was free from danger to both mother and child, and accomplished the object in view by either completely abolishing or else reducing to a minimum the pains of parturition.

Professor SAMUEL POZZI (Paris) read a paper on

Fibroids of the Uterus and Pregnancy,

in which he pointed out that under the influence of pregnancy fibroid tumours of the uterus may undergo an important series of modifications as regards their size and position. It is generally taught that fibroids become enlarged during pregnancy, but this is very variable, the change in size being at times slight, at other times sufficient to cause pressure symptoms. In some cases, as he has pointed out specially, these tumours undergo during pregnancy a very rapid and remarkable increase in size. The enlargement of a fibroid tumour concurrently with pregnancy is usually due to œdematous infiltration, but it may be caused by actual hypertrophy of the tumour elements, which produces a more or less marked softening of the whole tumour. In other cases a process of aseptic necrosis takes place, but more often cystic degeneration occurs, while rarely suppuration and gangrene of the tumour are met with. During pregnancy there is a general tendency for pelvic fibroids to rise up out of the pelvis, but at times this does not occur and in such cases obstruction to delivery is very likely to be present. With regard to the influence of fibroid tumours upon pregnancy, in many cases they do not in any way interfere with the normal course of the gestation. Occasionally, however, accidents of considerable gravity occur. Among these are incarceration of the retroverted gravid uterus, especially likely to take place at the fourth month, and very frequent with an intraligamentous fibroid. When the tumour either by its weight or its position exercises pressure on the walls of the bony pelvis pressure symptoms are liable to supervene. These may take the form of pain due to compression of the nerves, dysuria, retention of urine, albuminuria, pyelonephritis, constipation, or distension from pressure on the intestines. In some cases attacks of pelvic peritonitis are set up and may require immediate operative procedures being undertaken. In some very rare instances torsion of the pedicle, or even of the whole uterus, may be met with, with acute symptoms simulating those seen in cases of torsion of the pedicle of an ovarian cyst. Further effects of the fibroid on the pregnancy are noted in the occasional occurrence of ante-partum hæmorrhage, abortion, death of the fœtus, and its retention in utero. The diagnosis of a fibroid complicating pregnancy may be simple or very difficult. Three conditions may arise: the medical attendant may be aware that his patient has a fibroid and may find evidence of the occurrence of pregnancy, or he may know nothing of the patient and may find a fibroid with

symptoms and physical signs indicating the presence of a pregnancy as well. In other cases, again, the signs of a pregnancy may be evident, but there may be others less certain pointing to the presence of a fibroid. In such a case the diagnosis may present serious difficulties, and the case is very likely to be regarded as one of extra-uterine gestation. In the great majority of patients the pregnancy runs its normal course, even when a fibroid is present and no interference of any kind is required. Any operative interference is only permissible during pregnancy when some grave complication supervenes, such as marked pressure symptoms, vomiting, severe pain, or peritonitis. In any case, even when it is certain that the presence of the fibroid will not permit of a natural confinement, it is necessary to await the arrival of full term and then to practise Cæsarean section. In cases where the obstetrician is compelled to intervene in the course of the pregnancy the best treatment is to perform, whenever possible, myomectomy, either vaginal or abdominal. The induction of abortion or of premature labour is alike contra-indicated, and when myomectomy is not possible then the only alternative is hysterectomy.

SECTION IX.—OPHTHALMOLOGY.

Mr. A. F. MACCALLAN, Chief Inspector of Ophthalmic Hospitals in Egypt and late senior house surgeon and late chief clinical assistant at the Royal London Ophthalmic Hospital, Moorfields, read to the section an interesting paper on

The Relief of the Eye Disease in Egypt,

in which he considered mainly the incidence of blindness and trachoma. Mr. MacCallan divides the clinical variety of trachoma seen in Egypt into four stages based on the comparative prominence of the three features of the disease—granulations, papillary hypertrophy, and connective-tissue formation. The universality of trachoma in Egypt is instanced by the high percentage of pupils in the Government primary schools affected with the disease, 96 per cent. at one of them. According to the census of 1907, half a million persons were enumerated as blind in one or both eyes; this figure is probably a quarter of a million short of the actual number. It has been suggested that ophthalmic conditions have enormously improved in Egypt during the last 20 years, but no explanation has been offered for this phenomenon, which is probably as yet unrealised, the extraordinary density of the population militating against hygienic progress. The generosity of an Englishman enabled the Egyptian Government to equip and maintain two travelling hospitals which were originally organised six years ago by Mr. MacCallan. In addition to these, he has the direction of three permanent hospitals in different provinces recently built, or being built, partly by charitable effort and partly by the Government. Mr. MacCallan travels from one to another of these five hospitals, of which he is director, and at which he gives clinical instruction to Egyptian surgeons who have obtained their diplomas at the Government Medical School. The surgical staff of all the hospitals is composed of surgeons thus trained.

SECTION XII.—PSYCHIATRICS.

Dr. FISCHER (Budapest) read a paper on

Imbecility in its Clinical and Medico-Legal Aspect.

He took for his subject that particular form of imbecility which has been described under the names of moral insanity or moral imbecility. After a full discussion of the symptoms which were invariably present in this condition, he assigned the foremost place to the following ones: Lack of discretion, absolute incapacity for being influenced, strong criminal propensity traceable even to childhood, lifelong instability and restlessness, aversion to useful employment, unsociableness, exaggerated self-esteem, excessive fancifulness, vanity, egotism, complete want of ethical ideas and impulses, absolute unconsciousness of justice and morality, and a great many bodily signs of degeneration. Heredity had something to do with the development of these defects. Observations extending over many years had convinced Dr. Fischer that the ethical imperfections enumerated in this list and the criminal acts arising therefrom were the result of mental incapacity dating from the earliest period of life. In all cases which he had the opportunity of observing from the age of 10 or 12 years to full maturity he found that the ethical shortcomings which rendered the persons in question useless as members of society showed no tendency to increase. He then described those forms of the disease which presented similar symptoms, and might therefore be confused with moral imbecility, called attention to the chief points serving to distinguish them, made some remarks on the prognosis, discussed the general question of how such cases should be dealt with, and devoted a few words to the subject of judicial decisions. He agreed with Songard that this form of mental abnormality presented certain features which were always similar and decidedly characteristic; as already mentioned, the features in question existed from the earliest period of life and showed no tendency to increase; on account of possessing these qualities the condition now described might be reckoned as one of the special or definite types of mental disease.

SECTION XV.—RHINOLOGY AND LARYNGOLOGY.

Dr. ZWARDEMAKER (Utrecht) read a paper on

Experimental Phonetics regarded from a Medical Point of View.

In the introductory passages he said that speech might be regarded as a process of vocal mimicry (*eine phonische Mimik*), coinciding with the act of expiration. He then discussed the subject under the following heads: (1) The origin and carrying power of the voice, the estimation of its intensity, and the uselessness of determinations of air convection for this purpose; (2) the speaking voice, pitch, recording methods, chest register, and the whispering voice; (3) the phonetics of articulation, methods of recording the motion of the air, of the larynx, of the velum, of the lower jaw, of the lips, and the position of the tongue; and (4) phonetic acoustics. Special attention was called to the importance of the position assumed by the various parts in the production of multiple resonance and to the fact that the size of the several cavities and the area of the constricted portions were the determining factors. By means of the recording methods the influence of the various conditions producing the effect could be read off from the curves if the latter were taken with due regard to the synchronism of the events. Under the head of phonetic acoustics the predominant factors in the formation of vowels were studied; as far as determinations existed these were exhibited in a tabular form for different languages, and corresponding particulars were given with respect to some noises of independent origin but similar sound. The results of acoustic research have already found application in clinical medicine, since they afforded a means of grouping otological tests. When monosyllabic words composed of properly selected vocal elements were used, the results were very uniform and quite independent of the accent. These methods have been employed by various observers for the Dutch, German, French, Italian, and English languages, and recording methods have also been worked out for them. In conclusion, Dr. Zwardemaker mentioned Callée and the international attempts which have been made to create a universal phonetic alphabet; he also discussed the practicability of representing it by visible characters.

SECTION XVII.—STOMATOLOGY.

The section started work on Monday morning and maintained its international character, the members present at the opening discussion representing practically all the countries of Europe as well as America, while the President, Professor J. DE ARKÖVY, who is an excellent linguist, delivered his opening address in German, French, English, and Hungarian.

Heredity and Oral Malformation.

The two first papers by Dr. V. GALLIPPE (Paris) and Dr. ZSIGMONDY (Vienna) prepared the way for a general discussion on the influence of heredity in oral malformations.

The discussion was followed by a paper by Dr. PIERRE ROBIN on

The Physiology of Mastication.

Dr. Robin illustrated his paper with a number of diagrams and models. He pointed out that the amount of abnormality in the masticatory apparatus can be reduced to a species of mathematical formula, and that by adopting such a method it is possible in any given case to estimate the amount of deviation from the normal. By further mutation the figures so

obtained can be applied to building up an ingenious piece of apparatus that represents the normal shape for the abnormal mouth. A prosthetic apparatus can therefore be made which will reduce the abnormal to the normal condition in any given instance.

The paper was submitted to a somewhat exhaustive discussion and the morning sitting adjourned.

On resuming in the afternoon papers were read by Dr. HELLER (Vienna) on the Physiology of the Tooth Pulp; by Dr. M. KULKE (Vienna) on Tooth Structure; and by Dr. A. HERPIN (Paris) on the Dentition of the Eel and on Geminated Teeth. The attendance in the afternoon was not as good as in the morning, and the somewhat restless state of the audience at times rendered hearing rather difficult.

Affections of the Mouth and General Disease.

On Tuesday morning the proceedings were commenced with a report by Dr. L. CRUET (Paris) on the Pathology and Therapeutics of Infections of the Mucous Membrane of the Mouth occurring in General Disease. Dr. BELLINZONA (Milan), as co-reporter, discussed the question of Diseases of the Buccal Mucous Membrane following General Diseases. Mr. KENNETH W. GOADBY (London) also read a paper on the Treatment of Certain Infective Diseases originating in the Mouth by Means of Specific Vaccines.

Dr. CRUET, who opened the discussion, made an attempt to tabulate in a concise method the various oral diseases associated with general diseases, as well as the manifestations of certain specific diseases, such as syphilis, which have a definite mouth lesion; and he suggested that in, for example, syphilis he thought there would be no ulceration of the mouth if the disease took place in an individual who possessed a healthy mouth. He also referred to various gouty affections of the mouth. The report was an exhaustive *résumé* and covered a very wide field.

Dr. BELLINZONA'S contribution dealt more with the suppurative conditions which follow various general diseases.

Mr. KENNETH GOADBY confined his attention to three types of cases, rheumatic, intestinal, and skin eruptions associated with, and bacteriologically connected with, a rarefying osteitis of the jaws without pus formation, and cited cases in point which have been cured by the use of appropriate vaccines.

A good discussion followed, in which Dr. ROBIN (Paris), Dr. RHEIN (Philadelphia), Mr. J. G. TURNER and Dr. J. SIM WALLACE (London), Dr. ALLAEYS (Antwerp), Dr JEAN WASSILEF (Sofia), Dr. AMOEDO (Milan), Dr. FONCHEL (Hamburg), Dr. BOGUE (New York), Dr. ROZGONYI (Budapest), and others took part. After brief replies from the readers of the papers the meeting adjourned.

Absence of Roumanian Medical Men.

On Wednesday the meeting should have commenced with a paper by Dr. P. MARCOVICI (Bucharest), but as the Roumanian medical profession is holding aloof from the International Medical Congress the paper was not forthcoming. The absence of the Roumanian doctors is a regrettable incidence and is one of political significance and has no relation to the Congress itself other than Hungary being the host. The action of the Roumanian medical men is a frequent topic of discussion at the *cafés*, and on two occasions strangers have inquired what was thought in the medical profession of the action of our *confrères*. The consensus of opinion among the more democratic Hungarians is on the side of the Roumanians.

The next subject for deliberation was

The Present State of Knowledge of the Prophylaxis of Dental Caries,

introduced by Mr. KENNETH GOADBY (London), *rapporteur*. A summary of this paper was published last week (p. 810). Two other papers relating to the subject by Dr SIM WALLACE (London) and Dr. ROZGONYI (Budapest) were taken before the discussion which followed. This discussion was carried on till the end of the morning, a large number of the members taking part, the chief points of disagreement being the advantage or disadvantage of the use of the toothbrush. To the impartial observer who is seeking for some solid foundation upon which to base his opinions, there were too few facts and too many conjectures, while in one instance an experiment quoted as a conclusive proof of the advantage of not cleaning the teeth showed that a multitude of acid producing organisms remained sequestered in the mouth and were resident there the next morning. Uncontrolled experiments are always dangerous, but to develop theories upon isolated instances only produces confusion and misconception.

Demonstrations in the Stomatological Klinik.

In the afternoon the section met in the new Stomatological Klinik of the University of Budapest. This institution, the first of its kind, is fitted with all the more recent appliances for oral surgery in its every branch. In its well-fitted lecture theatre, designed by Professor Arkövy, a series of demonstrations were given, among them an interesting communication from Mr. J. G. TURNER (London) on the Movement of the Teeth after Extraction, and a demonstration of New Observations on Syphilitic Teeth by Professor D. G. CAVALLARIO (Florence). The Stomatological Institute deserves further mention, and I hope to give a more full description at a later date.

SECTION XVIII.—HYGIENE.

M. BALLO (Budapest) made a communication on

The Control of the Milk-supply in Large Towns.

He said that the official examination of milk delivered for consumption in large towns is subject to extraordinary, often almost insuperable, difficulties. Since the composition—that is to say, the amount of valuable elements contained in it—is subject to great variation in natural milk, and since, according to most regulations, the composition of the weakest, that is the milk that is poorest in such elements, is used as the foundation for the examination, it is obvious that a richer milk can be adulterated or diluted to a certain degree so as to appear as weak, yet not adulterated milk, and be thus offered for consumption. In any such case, it is only possible to decide the question whether the milk is naturally weak or is more or less adulterated with water by means of tests undertaken regularly at the stalls, and this is impracticable for large towns which draw their milk from many and various sources, unless by means of control of all dairy farms and milk depôts. But since such continual control would entail much expense, the question arises as to whether it would not be simpler and more effectual to prescribe as the minimum standard a richer average milk instead of the weakest natural milk as at present. The latter proceeding would appear the most suitable, for the purveyors of weak milk would certainly lose the trade in large towns if they are not in a position to provide a supply of richer milk, but the sanctioning of a possible watering of milk would be thereby avoided in the surest and simplest way.

SECTIONS XX. AND XXI.—MILITARY, MARITIME, AND TROPICAL MEDICINE.

Dr. CLAUDIO SFORZA (Rome) contributed a paper on

Tuberculosis in Armies.

He said that tuberculosis is, generally speaking, diminishing in all armies. Its incidence is always more marked during the first year of soldiers in the ranks. In armies tuberculosis is generally an imported disease, proceeding from the revival of old and latent foci existing at the time of admission to the service. In order to reduce the number of cases and of deaths from tuberculosis it is necessary to eliminate all tuberculous and predisposed subjects on entry to the army; to gradually improve the strength and the power of resisting fatigue of the recruits, especially those whose constitution is weak and those who have a bad heredity; to avoid as far as possible the contraction of the disease by soldiers during their service, and to eliminate promptly all cases of tuberculosis which arise. Cases of the disease, whether curable or incurable, would have to be treated in civil or military sanatoriums at the expense of the State, because armies, while protecting soldiers from tuberculous infection, must not spread the disease among the civilian population. On leaving a sanatorium the patient could receive an annual or temporary indemnity, according to the degree of incapacity at the time.

Dr. DRASTICH (Vienna) communicated a paper on

Dementia Præcox and Military Service.

He said that great importance attaches to dementia præcox in connexion with military matters. For it occurs relatively often among the men and also in isolated cases among the younger officers. Since it often develops very gradually, even

imperceptibly, it is not infrequently overlooked in the early stages. It occasionally leads to various conflicts with discipline and military penal law, and, moreover, to occasional punishment or ill-treatment of those suffering from the disease, and at times it shows symptoms which may easily be mistaken for simulation. For the above reasons it is important that not only military doctors but also military judges should possess as exact a knowledge as possible of this form of psychic derangement, and especially that they should know the symptoms with which the disease is frequently masked at the beginning. Also the knowledge that dementia præcox often takes an intermittent course and has rather long intervals of quiescence is most important and essential in regard to the anamnesia, for the assessment of the data relating to the anamnesia, and also for the judging of claims of maintenance which come under consideration.

Dr. JAMES M. ANDERS and Dr. WILLIAM L. RODMAN communicated a paper on

The Treatment of Amœbic Dysentery with Special Reference to Appendicostomy.

The subject of the treatment of amœbic dysentery, particularly in its bearings upon surgical procedures, assumes importance in view of the utter hopelessness of a certain proportion of cases which have been allowed to drag on until they no longer yield to medical treatment, and also because accessible statistics indicate clearly the widespread prevalence of the disease even in subtropical and temperate regions. The fact that an unsterilised water-supply is the principal source of infection deserves especial emphasis. The danger of eating green vegetables and fruits which have either been fertilised by the oriental method, i.e., with human excrement, or cleansed with contaminated water, must be recollected. In the treatment of the attack an important indication to be fulfilled is rest. Magnesium sulphate is recommended, since it lessens the pain and tenesmus by removing the hardened fæcal masses and inhibiting rather than exciting undue peristalsis. In the advanced stages of amœbic dysentery and in cases manifesting highly acute invasion symptoms purgatives may assume the rôle of aggravating causes. Ipecacuanha early gained popular favour only to fall from its enviable position with the passing of time. It was reintroduced by Sir Patrick Manson, who has expressed the belief that in this drug we have a remedy possessing specific virtues. In general, but not invariably, it exerts a markedly beneficial effect, causing the amœba to disappear rapidly from the dejecta. Much stress is placed upon the improved mode of administration by means of "membroids" and salol-coated pills. It may be questioned whether chronic irrigation *per se*—i.e., without surgical intervention—has in its last analysis given more encouraging results than the ipecacuanha treatment properly employed. The simple fact is that not all cases of chronic amœbic dysentery yield to either rectal lavage or ipecacuanha even though carried out with great thoroughness. It is desired to place on record a case in which appendicostomy followed by irrigations with a solution of quinine resulted in a remarkable cure. The authors favour doing the operation in two stages, believing that it is best not to open the appendix until firm adhesions have taken place between the cæcum and parietal peritoneum. If the meso-appendix is ligated the blood-supply to the appendix is cut off and gangrene is almost certain to follow. Bring the base of the appendix well up against the abdominal wall, stitching the meso-appendix to the parietal peritoneum. The appendix is snipped off with a pair of scissors after brushing it over with a solution of cocaine. As compared with cæcostomy they unhesitatingly pronounce in favour of appendicostomy, since it is impossible to prevent leakage after the former operation. It is their belief that the fistula should, as a rule, be maintained indefinitely if the patient contemplates residence or travel in a tropical country. Closure of the fistula is most easily accomplished when desirable.

Dr. AYRES KOPKE (Lisbon) made a communication on

The Treatment of Human Trypanosomiasis.

He stated that the present report was a continuation of communications on the same subject made by him to the International Medical Congress in Lisbon in 1906, and to the Congress of Hygiene and Demography held in Berlin in 1907. He had used atoxyl since July, 1905, and in spite of its immediate beneficial action he found that if the trypanosomata had invaded the subarachnoid space relapses occurred and death followed sooner or later. But if the atoxyl injections were begun before this invasion had occurred cure could be brought about by means of this drug alone. He had one patient who had quite recovered and had remained free from symptoms and free from trypanosomata for the last two years, and he had other cases under treatment which seemed likely to give an equally satisfactory result. He dwelt on the fact that the parasites might be already in the subarachnoid space without causing any special symptoms. With regard to prognosis, therefore, cases should be grouped not with regard to the clinical symptoms so much as with regard to the presence or absence of the trypanosoma in the cerebro-spinal fluid. Finally, the treatment, he thought, should begin with maximum doses, no matter what the drug adopted.

In the discussion which followed Professor LAVERAN said that he wished to insist on the utility of mixed medication in the treatment of diseases due to trypanosomata. He was the first to indicate the advantages of this form of treatment, and this is explained by the fact, demonstrated by Ehrlich, that there are different varieties of these organisms in the same patient. The simultaneous use of atoxyl and tartar emetic has led to real cures. On his advice a triple treatment by means of atoxyl in hypodermic injection, of tartar emetic by the same method, and of orpiment internally had been tried in Senegal and given very satisfactory results in sleeping sickness. He had tried some other new drugs in infections by trypanosoma.

Some further discussion followed between the reader of the paper and Professor LAVERAN, mainly with reference to the details of the treatment adopted.

Professor GABBI (Rome) read (in Italian) a paper upon

Kala-azar in Sicily.

In the discussion which followed Dr. DEBAYLE (Nicaragua) stated that there exists a certain confusion between kala-azar and paludism. Several cases occurring in Nicaragua since 1895 which he had diagnosed clinically as chronic malaria with enlarged spleen were, he was convinced, as the result of more recent researches, most probably cases of kala-azar.

Dr. BERTRAND of the French Colonial Service called attention to an endemic disease in the islands of the Greek Archipelago which had been described under the name of spetzas-hydra, and suggested that this disease might be no other than kala-azar.

Professor GALLI-VALERIO asked whether the author of the paper had looked for the Leishman body in dogs in the Italian districts where kala-azar prevails. He also drew attention to the analogy between the parasite of epidemic lymphangitis in the horse and that of kala-azar.

Professor LAVERAN bore witness to the prevalence of kala-azar in Tunisia and Senegal.

Professor GABBI, in reply to Professor GALLI-VALERIO, said that dogs could undoubtedly be infected with the parasite of kala-azar, but there was up to the present no proof that this disease in man was of canine origin. He referred to experiments made on this subject by himself and Professor Grassi.

On Monday afternoon Professor GABBI (Rome) opened a discussion upon

Climatic Bubo.

He was not absolutely certain whether these buboes constituted a distinct and separate pathological entity, but was inclined to the view that they did; they were a special form of adenitis, confined mainly to hot countries.

Dr. BELLELI (Port Said) stated that if he had certain doubts as to the existence of climatic bubo as a separate morbid entity it was because he foresaw a certain danger that, if this be admitted, ships' doctors will fall back on this diagnosis, and cases of real plague may slip through their hands. The pathological character of these climatic buboes is that of an adenitis from ordinary causes. Possibly they are produced more readily in hot countries than in Europe.

Professor GABBI, in reply, said that he was still uncertain whether climatic bubo was a separate disease. Clinically it had special characters; the bubo is very hard, painless, it suppurates with difficulty and does not easily heal. In these points it differs from traumatic or other buboes. In his cases he could absolutely eliminate syphilis or any other venereal disease. He thought that bacteriology might sooner or later settle the question. He did not deny that the staphylococcus occurs in the suppurating gland, but was

doubtful whether this was the cause of the bubo. The production of the bubo might be favoured by a high atmospheric temperature, by a certain predisposition in the individual, by a lessened organic resistance to microbic infection. The adenitis was certainly a special form, with a distinct "physiognomy."

Dr. KOLLER asked if the blood had been examined for malarial parasites in these cases of climatic bubo. He recalled a case he had seen at Smyrna, a sailor on a ship from Rhodes. The man had all the symptoms of plague, though the plague bacillus could not be demonstrated; on the other hand, malarial protozoa were found in his blood, and after injections of quinine he recovered.

Professor LAVERAN thought that malaria might be absolutely excluded as a cause of these buboes. He had never seen a case in which paludism was localised in the lymphatic glands. Malarial pigment was met with in the spleen, the liver, and elsewhere, but never, or very rarely, in the glands. If a malarial patient is found to have an adenitis one may be sure that this is due to some other cause than paludism. He had lived several years in Algeria but had never seen a climatic bubo there, although the climate was a very exhausting one for Europeans. The existence of a specific truly climatic bubo seemed to him to be by no means established.

Dr. BELLELI said that, from his experience in Egypt, he could confirm the observations of Professor Laveran in Algeria. As port health officer of Port Said he frequently saw cases of adenitis of uncertain character in sailors or stokers, but had never ventured to make a diagnosis of climatic bubo. He thought that, in view of the responsibility involved, such a diagnosis should not be too readily made. Some of Professor Gabbi's cases might possibly be examples of pestis minor, in which the plague bacillus could not be demonstrated.

The discussion on Climatic Bubo was continued on Tuesday morning. Professor DE SOUSA (Rio de Janeiro) stated that cases of climatic bubo had been known in Brazil long before the plague infection was imported there. The cause is unknown. When suppuration occurs staphylococci are always found. During the plague epidemic cases suspected to be plague were brought to hospital, but returned home in a few days, because they had been clearly shown not to be cases of plague. He did not believe that these climatic buboes were examples of pestis minor.

Dr. M. ARMAND RUFFER (Alexandria) said that he had seen much of plague, and had met with cases of climatic buboes. The latter were quite different from plague buboes, clinically, pathologically, and bacteriologically. In plague the bubo is very painful; its course is regular; it suppurates in from 8 to 15 days. But in climatic buboes the gland is painless, the process is slow, and the duration of the affection prolonged. Such buboes are frequently seen in stokers on shipboard and they often occur in strong and otherwise healthy persons. He had seen such cases in English soldiers in India in perfect health; it was possible to exclude absolutely the existence of syphilis or other venereal disease and there was no plague anywhere in the neighbourhood. In plague buboes the plague bacillus is found early in the disease; in from three to five days it disappears from the glands, and if suppuration takes place, staphylococci are found in large numbers, and some streptococci. In climatic buboes, on the other hand, nothing resembling Yersin's bacillus can be found; sometimes streptococci are found, sometimes staphylococci, sometimes the bacillus pyocyaneus, sometimes other organisms. In plague, also, the suppuration takes a different form, it occurs in the tissues round the gland, while in climatic buboes it takes the form of small foci of suppuration in the gland itself, and never occurs in the periglandular tissue.

Dr. TAUFFER (Fiume) and Dr. FOSSATARO (Venice) also spoke.

Professor GABBI closed the discussion. He agreed that further bacteriological inquiry was necessary, and he maintained his view that climatic bubo is probably a specific and separate morbid entity.

On Tuesday afternoon a communication by Dr. J. DUPUY and Dr. A. VILLEJEAN, entitled

Hospitalisation des Malades à bord Navires de Commerce,

was discussed. The authors concluded that, while all other branches of practical hygiene had advanced, the sanitation of ships had remained stationary. There was abundant need for improvements in the ventilation, lighting, heating, water-supply, latrine arrangements, &c., in ships. Hospitals, pharmacies, medical consulting-rooms, baths, disinfecting stoves, &c., should be provided. This would be easy in building new ships, and not impossible in ships already built.

Dr. MARKL (Trieste) read a paper on

The Rôle of Rats in the Transmission of Plague on Shipboard.

He dealt briefly with the different methods employed at present for the destruction of rats in ships. He thought that sulphurous acid gas gave unsatisfactory results; in some instances half the rats on board remained alive after the process had been applied.

Dr. KALLAR (Constantinople) was of the same opinion. The great advantage of the carbon monoxide method was that this gas was odourless, and therefore rats did not run away to escape it and so were killed. But when SO_2 was used they escaped, hiding themselves between the boards in the walls of the ship or elsewhere, and so remained alive. He recalled the case of a ship that arrived at Rhodes from Alexandria. Here the Clayton method had been employed, yet the ship still contained large numbers of living and strong rats. When SO_2 is used it is always necessary to examine bacteriologically the dead rats, and if any are found to be plague-infected a thorough disinfection of the ship must be carried out.

Dr. BELLELI said that theoretically the destruction of rats in a ship coming from an infected port appeared to be indispensable. But in a port like Port Said, where dozens of such ships touch daily and only stay a few hours, this was impossible. Moreover, the Clayton gases damage several kinds of goods; silks are discoloured by it, tea loses its aroma, and cargoes of silk and tea are constantly arriving from the Far East, and represent an enormous total value. These objections do not exist in the case of a port of departure. There ships can have their rats destroyed before loading. He strongly urged the systematic destruction of rats at fixed intervals on board of all ships carried out in their port of departure. This gives much better results than the same method applied in the port of arrival.

Professor LAVERAN thought that in considering the question of the disinfection of ships, not only plague but also cholera and yellow fever and other diseases must be thought of, and it is impossible to apply more than one kind of disinfection in the ordinary work of a port health service. For this reason the use of carbon monoxide should be excluded as it has no effect on mosquitoes or on bacteria. Sulphurous acid, on the other hand, kills mosquitoes and many forms of bacteria. When a ship is actually infected by plague or yellow fever its disinfection before the discharge of cargo is of prime necessity, as it is during the discharge that the diffusion of the disease occurs. The danger of damage to goods from the use of SO_2 gas had been greatly exaggerated.

Dr. F. G. CLEMOW (Constantinople) was of opinion that the problem of rat destruction was not yet solved either from the theoretical side or from the practical side. The ideal gas had not yet been found. The mixture of CO and CO_2 employed in the Nocht apparatus only killed rats; it had been shown by experiment that fleas could survive a prolonged exposure to its action, and it had, of course, no effect on bacilli. The danger to human life was a most serious drawback; already several fatal accidents had occurred, and the responsibility incurred by a sanitary authority in such an event was a very serious matter. The sulphurous acid methods, on the other hand, were quite safe; they killed rats and fleas with certainty, and, if properly applied, they killed microbes. From an experiment he had made in Liverpool in 1903 on an empty ship, wherein a large number of cultures of different microbes were exposed to Clayton gas, he had shown that all were sterilised, except sporing bacilli. A series of experiments conducted by Haldane and Wade near London had definitely established the limits within which each of the principal methods in use could be employed with satisfactory results. Practically the main point was to find a method applicable to *loaded* ships. In the case of an empty ship almost any method could be adopted with fairly certain results. At present the Clayton apparatus appeared to be the most satisfactory. The fact that this method damages certain goods was a disadvantage, but probably one of less importance than might have been expected. He had asked for information on this point from port health officers in many parts of the world, and all

had replied that up to the present no action had been brought in any instance for damages caused by the application of this method. He concluded by repeating that the ideally perfect method of rat destruction in a loaded ship remained to be found. The danger that rats might escape the action of SO_2 gas could easily be met by treating the different compartments of the ship systematically, beginning at one end and ending at the other. The rats were driven (if they escaped at all) in one direction, and at last had no further compartment to escape to.

Dr. TAUFFER pointed out that the Nocht apparatus was exceedingly costly, both as regards initial outlay and the cost of each operation. It was from three to five times more costly than the Clayton method. Probably it would in the end be best to choose different forms of apparatus for different ports, using a Nocht apparatus in wealthy ports where many ships arrive from infected countries, and a Clayton in smaller ports.

Professor GALLI-VALERIO thought that, on the whole, the balance of evidence was in favour of the Clayton apparatus.

Professor KITASATO (Japan) then read a paper on

Plague in Japan.

Rats, he said, played a different rôle in different epidemics. In those of bubonic plague there was frequently a distinct parallelism between the course of the epizoötic in rats and the epidemic in man. In the case of pneumonic plague no such parallelism existed. The three species of rats mainly seen in Japan were the mus rattus, the mus decumanus, and the mus Alexandrinus; the first and last were the most common, the second much less so. Five kinds of fleas were met with in rats. Of these the pulex cheopis was by far the most important in the spread of plague. It was not by means of its bite that it transmitted the infection, but solely by the evacuations from its intestinal canal. Fleas prevailed mostly in Japan in the spring. Rats played a leading part in the spread of the disease. Plague was undoubtedly spread from rat to rat by means of fleas, but it had yet to be shown that it was so spread from rat to man. Among measures to control plague epidemics, rat destruction was the most important. Various methods had been employed for destroying rats; poisons, whether chemical or bacterial, had not given satisfactory results. Cats were now being made use of in the endeavour to exterminate rats. This had been strongly urged by Buchanan in India.

Dr. CANALIS (Genoa) said that he and his assistants had handled many rats dead from plague and which were swarming with fleas, yet they had none of them contracted the disease. He felt that caution was needed in the employment of cats as a plague measure, as these animals may themselves become infected and so spread the disease.

Professor KITASATO replied that he had only recommended recourse to the use of cats in ordinary times when plague was not present. It should be regarded as a prophylactic measure, intended to diminish the rat population, and so lessen the risk when plague was introduced. There were practical difficulties in the way, cats, if well fed, ceasing to be good ratters.

Professor GALLI-VALERIO thought that dogs might also be usefully employed.

Dr. TAUFFER said that a small variety of rat-destroying apparatus, either on the Nocht or the Clayton system, might be used to destroy rats in cellars and drains, and this might be more effective than either cats or dogs in the campaign against rats in a plague-infected town.

Professor UNIARTE (Buenos Ayres) thought that fleas, though not the only, were the principal channel of infection in plague. He had obtained cultures of very virulent plague bacilli merely by smearing the juice from a crushed flea on to gelatin. The intestine of the flea may contain the bacillus in large numbers. The persistence of plague in certain countries was undoubtedly due in part to the large numbers of pulex cheopis on rats.

Dr. TAUFFER read a paper entitled

"*Pest-studien*,"

in which he said that he had found in plague cases a bacillus which was motile and which in other respects also differed from the typical plague bacillus. A short discussion followed, in which Professor GALLI-VALERIO expressed the opinion that there were probably many varieties of plague bacilli, as also other bacilli closely resembling these, which in time would be differentiated from each other.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 17th, 1831.

PROPOSAL FOR OPENING THE LONDON LYING-IN HOSPITAL TO MEDICAL STUDENTS.

To the Editor of THE LANCET.

SIR,—Believing you are ever ready to attend to any suggestion which may conduce to the public welfare, I venture to address you in the hope that through you the public, but more particularly the junior branches of the medical profession, may be benefited. In passing up the City Road, a thought has often struck me that the City of London Lying-Inn Hospital, at present appropriated for the instruction of females only, might, under proper regulations, be converted into a highly useful school for the instruction of medical pupils in the obstetric art—viz. if the physicians were to give clinical lectures after the fashion of those in Paris, to the pupils admitted to the practice of the hospital—say one half of the fee to go to the funds of the charity, the other to the lecturer, I will venture to say that the majority of the Borough pupils, with those from St. Bartholomew's and the Middlesex, would be very glad to resort to such a practical school, instead of the mere theory they now have. It is a pity, Mr. Editor, that amongst all our *public* schools we have not one, at least in the eastern district of London, where a young man can learn his profession as an accoucheur practically; and I put it to the good sense of any reasonable man, what an awful responsibility devolves on a practitioner who is intrusted with the lives of a mother and child for the first time, having only a theoretical knowledge of his profession. Surely, Mr. Editor, all our institutions were originally intended to benefit the public and the rising generation, and I do not see how this can be more effectually done, at least in one point of view, than in endeavouring to preserve the lives of women and children. It is absurd to have such an institution as the City of London Lying-Inn Hospital exclusively for female pupils, for you cannot (at least it is not done in this country) teach women practical anatomy, the basis of all our knowledge. And we have had too many unfortunate examples of the ignorance of midwives in this science.

The adoption of the foregoing plan would add considerably to the funds of a charity, and at the same time diffuse useful knowledge among those willing to avail themselves of it. Trusting to your notice of this institution to bring about a reform,

I am, Sir,

Sept. 9, 1831. A JUNIOR STUDENT.

PRESENTATION TO MR. E. M. GRACE.—At the Grand Hotel, Bristol, on Sept. 7th, the Duke of Beaufort, on behalf of the subscribers, presented Mr. Edward Mills Grace, M.R.C.S. Eng., L.R.C.P. Edin., L.S.A., with a cheque for £600. Mr. Grace recently resigned the position of secretary to the Gloucestershire County Cricket Club, a post he had held for 39 years, and it was then thought that the time was opportune for acknowledging in a tangible form the services he had rendered during that long period. As Mr. Grace had often represented his country in cricket, subscriptions were invited from beyond the borders of Gloucestershire.

DANGEROUS TOYS.—"Death from paralysis brought on by the current from a toy which he handled by misadventure" was the verdict returned at an inquest held at Gillingham (Dorset) relative to the death of a boy aged nine years. The toy, which was about the size of a match-box and cost 2*s.*, belonged to a boy who left it with his clothes whilst bathing. The deceased lad picked it up and gave himself "a shock"; when he returned home he told his father "that the shock seemed to move all the bones in his body." The medical witness was of opinion that the current in the first instance set up neuritis which gradually spread to the spinal cord and brain.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 18, 1909.

Angina Pectoris.

FEW diseases possess more striking or more characteristic features than angina pectoris. The severity of the pain, with its dual qualities of intense bodily suffering and of grave anxiety of mind reaching what is without doubt the most acute anguish that human nature is called on to bear; the dramatic suddenness of its onset, and of the fatal termination in a certain proportion of the cases—all these combine to render it one of the most dreaded of diseases. Moreover, the toll it has claimed from among learned and distinguished men has invested it with a special interest and with a tragic history, as witness the deaths of JOHN HUNTER and of ARNOLD of Rugby. Characteristic as are its clinical manifestations, it is somewhat remarkable that the pathological lesion underlying it has proved so difficult to establish, which no doubt accounts for the plethora of theories which have been propounded to explain its pathogenesis—theories, indeed, almost as numerous as the writers on the subject.

In opening the discussion on angina pectoris at the Section of Medicine of the meeting of the British Medical Association at Belfast, of which a report has already appeared in our columns,[1] Sir T. CLIFFORD ALLBUTT exposed the slender character of the evidence on which most of these theories are based; indeed, certain of them, as he showed, are mutually antagonistic. After dealing destructively with some of the best known of these he proceeded to expound an explanation which he brought forward so long ago as 1894—a theory which many think has not received the notice or recognition which the evidence he offered should command. Preparatory to the enunciation of this theory he gave a classification of the types of the disease which differs in certain features from those in common use, a classification which we think has certain advantages. He dismisses at the outset all consideration of those cases which are frequently called pseudo-angina, which he bluntly characterises as pseudo-diagnosis, thus recalling an aphorism quoted by HUCHARD—that there are no false diseases but only false diagnoses. The cases of genuine angina he divides into two classes—angina major and angina minor. In the latter the attacks are usually the sequel of muscular effort, the arterial blood pressure is definitely raised, the attacks are as common in women as in men, and the pain, although associated with an apprehension of evil, is not necessarily accompanied by the fear of impending death. In angina major, which is commonest among males, on the other hand, the pain is more severe and radiates in the well-known directions. The blood pressure need not necessarily exceed the normal, which Sir CLIFFORD ALLBUTT interprets as indicating that the exciting focus of the disease is so sensitive that even a slight rise in pressure may agitate it. This form of the disease is not infrequently fatal, sometimes in a first attack, and, as Sir CLIFFORD ALLBUTT maintains, usually in the early stages of the attack. The essential nature of his theory, expressed in brief, is that the supra-sigmoid portion of the aorta with its investments is the actual site of the change which leads to the disease. Clinical observations have led him to suspect that this region is peculiarly susceptible to changes of blood pressure. He lays special stress upon the investments of the aorta and their involvement in the lesion, and even suggests that the Pacinian bodies which are found in this region may be concerned in the process. He points out that recent observations have shown that the pain in intestinal colic and in other forms of visceral pain is not due to the contraction of the non-striped muscle but to the dragging upon the mesenteric or other attachments. He therefore entirely repudiates any suggestion of the cardiac origin of the pain in angina. He believes that there exists a morbid susceptibility of the supra-sigmoid region of the aorta and its investments, and that the increase of pressure produces a dragging upon those investments, leading to a summation of stimuli which affects the corresponding spinal segment and leads to the referred pains so well known in this disease. The vaso-motor phenomena so often present Sir CLIFFORD ALLBUTT regards as incidents not partaking of the essential nature of the disease, and the sudden death he characterises as accidental and due to vagal inhibition, analogous to, and comparable with, the sudden death which occasionally occurs from blows on the testicle, from operations upon the generative organs or upon the root of the lung, from injections into the pleura, or even in association with gall-stones in rare cases. In other words, he regards this special region of the aorta to which he attributes the anginal paroxysm as so sensitive that it may lead to sudden and immediately fatal cardiac arrest from vagal inhibition. He brings forward some interesting observations showing that whereas this may in rare cases occur with a healthy heart, it does so much more frequently when the heart is the subject of coronary disease, and also others indicating that in old people vagal arrest is more likely to occur than in young ones. He also suggests that the fear of death may be an echo in consciousness of this vagus effect. Sir CLIFFORD ALLBUTT adduces as a strong argument against the view that the disease has its origin in irreparable damage to the heart the admitted fact that some cases, especially in young subjects, go on to complete recovery.

It will be seen from this *résumé* that Sir CLIFFORD ALLBUTT admits of but one explanation of the phenomena of the disease, and his theory has the merits of comprehensiveness and simplicity. Recently JOSUÉ of Paris has adopted it in its entirety without acknowledging its source, and a somewhat similar view has been propounded by Dr. H. WALTER VERDON,[2] but in a form adapted to include the functional cases, or so-called pseudo-anginal attacks. It must be

[1] THE LANCET, July 31st, p. 336.

[2] THE LANCET, July 24th, p. 244.

admitted that the evidence adduced by Sir CLIFFORD ALLBUTT in support of his views is very suggestive, while the simplicity of the theory renders it attractive, and if further evidence serves to confirm it, it is only just that he should receive the credit of his 15 years' priority. We must confess, however, that at present the evidence seems hardly complete, though it offers the only explanation of the origin of the disease. The remarks of Professor WILLIAM OSLER at the Belfast discussion in which he summed up the present state of our knowledge in regard to the problem represent the accepted opinion with admirable conciseness. He admitted that there was a group of cases associated with local aortitis and periaortitis of which Sir CLIFFORD ALLBUTT'S theory affords an excellent explanation, but pointed out that there was also a large group of cases associated with disease of the coronary artery but without disease of the aorta, and a third group of exceptional occurrence in which neither disease of the aorta nor of the coronary artery was found. The validity of Sir CLIFFORD ALLBUTT'S explanation in regard to these two latter groups now requires establishment.

In the correspondence which has since been published in our columns a similar criticism has been put forward by Sir R. DOUGLAS POWELL,[3] who, while admitting that stretching of the supra-sigmoid region of the aorta will account for some cases of angina but not for all, affirms that the mechanism of this condition "consists of one or other of at least three or four combinations." Dr. E. H. COLBECK[4] and Dr. A. P. BEDDARD[5] do not think that aortic stretching is adequate to explain all the symptoms of the anginal attack, while Dr. ALEXANDER MORISON[6] would attribute the symptoms to stimulation of the cardio-vascular nerves in any part of their course from the supra-sigmoid area downwards. A consensus of opinion among other authorities seems to indicate that angina of typical character may occur in the absence of lesions of the aorta, so that Sir CLIFFORD ALLBUTT has to defend his views from a many-sided attack with all his scientific experience and great learning. We hope that the Belfast discussion will serve to draw more attention to Sir CLIFFORD ALLBUTT'S work and to his theory, and will lead to a more systematic examination of this part of the aorta as well as of the heart and coronary arteries in all fatal cases of angina pectoris. General systematic examination of the aorta and its investments in this region in such cases should surely go far to elucidating the problem.

African Entomological Research.

ENGLAND may have lagged somewhat behind in the investigation of the relationship of biting insects to disease. But if this reproach has ever been well grounded we are glad to be able to state that it is now in a fair way to be removed. The Secretary of State for the Colonies, as announced briefly in our columns of Sept. 4th, has appointed an Entomological Research Committee which is to make Africa the site of its investigations with a view to the carrying out of further inquiry into the relation which exists between insects and the propagation of certain diseases of man and animals. The composition of the committee leaves little to be desired, for it numbers among its members men who have already distinguished themselves by their researches in this and other branches of the subject. From the labours of this body we may confidently look forward to a material increase in our knowledge, with a coincident improvement in some at least of the conditions produced by insect life which have hitherto retarded the economical development of certain of our African colonies.

It is intended to despatch a trained entomologist to the east side of tropical Africa and another to the west, to collect specimens and to observe and report upon the noxious insects which are there to be found. Local observers, official and other, are to be pressed into the service to assist the entomological experts in their inquiries. By this means it is expected that organised investigations will be carried out in a number of localities in East and West Africa, and that the collections of specimens along with the reports of the observers will be transmitted to the research committee in London, where the specimens will be classified and the named varieties distributed to such institutions as may require them for instructional purposes at home and abroad. It is also proposed that the committee should publish the scientific results obtained, including the observations and experiments made by the local collectors, in a journal which would focus all the knowledge gathered from workers, British and foreign, in various parts of the world, in somewhat similar fashion, we presume, to that which is done for its special subject by the excellent monthly bulletins issued by the Sleeping Sickness Bureau. With identification of the insects which convey disease to man and animals, as well as those which are injurious to farm or garden produce in the tropics, or which are detrimental to trees and shrubs which are of commercial value, will doubtless follow the identification of those insects which may act as benefactors or friends of man by preying upon blood-sucking flies and the other insect pests which abound in tropical Africa. In this connexion we draw attention to the observations published in THE LANCET of Sept. 4th by Dr. J. M. ATKINSON, principal medical officer, Hong-Kong, who believes that he has discovered there a natural enemy of mosquitoes and a devourer of their larvæ, in the form of a fly which has been classified as belonging to the family of the anthomyidæ or flower flies. Should Dr. ATKINSON'S observations be confirmed a wide possibility may be opened up for the amelioration of malarial regions infested by anophelines, through the importation and acclimatisation, if possible, of these natural enemies of the mosquito.

Pioneer work in economic entomology has already been done in Africa. Among others who have performed a part we may mention the experts belonging to the Sleeping Sickness Bureau, and also those attached to the Wellcome Research Laboratory at Khartoum; and specially we would mention the staff of the Natural History Department of the British Museum. Some time ago the then director of that department, Sir E. RAY LANKESTER, had before him a scheme for

[3] THE LANCET, August 14th, p. 490.
[4] THE LANCET, August 21st, p. 571.
[5] THE LANCET, Sept. 18th, p. 889.
[6] THE LANCET, August 7th, p. 413.

preparing a monograph on blood-sucking insects in general. This comprehensive work would, however, have occupied a long time in preparation and it was therefore decided to proceed by instalments. From 1901 to 1907 four volumes of a "Monograph on Mosquitoes" were published by Mr. F. V. THEOBALD of that department, and a fifth volume is now in course of preparation. The "tsetse flies" were described in a work issued in 1903 by Mr. E. E. AUSTEN, also of the British Museum Natural History Department, and the same author, who it may be remarked is a member of the recently appointed Entomological Research Committee, has just published a most valuable volume dealing with the "African Blood-sucking Flies" (other than mosquitoes and tsetse flies). This work is illustrated by a series of 13 plates containing 103 coloured figures executed with the utmost artistic skill by Miss GRACE EDWARDS. The timely publication of this book must prove of the greatest service to all who are engaged in entomological work in Africa. It contains a list of the African blood-sucking flies arranged, as far as their distribution has been ascertained, under each colony, dependency, or protectorate comprised in the "Dark Continent," including the British, German, French, Portuguese, and Italian territories, as well as those of Abyssinia, Somaliland, the Soudan, Egypt, the Congo Free State, and Liberia. To give a single illustration from Mr. AUSTEN'S work, we make a brief reference to one family, the tabanidæ, to which the majority of blood-sucking flies in Africa belong. Although no fewer than 86 out of the 103 species illustrated in the book are members of this family, those represented are less than a third of the total number of African species of tabanidæ already known. The females of the majority of the species are excessively bloodthirsty during the hot hours of the day and thrust themselves, Mr. AUSTEN tells us, on the notice of travellers owing to their size and pertinacity, especially in attacking domestic animals—horses, cattle, and camels often streaming with blood in consequence of their attacks. So far as is known, the tabanidæ are not regular carriers of disease to man, though it is obvious that these flies, like any other blood-sucking diptera, may occasionally convey pathogenic organisms such as trypanosoma gambiense or bacillus anthracis. There are, however, observers who assert that the tabanidæ act as transmitters of certain forms of animal trypanosomiasis; but more experiments seem to be needed to prove this.

A wide field of investigation lies waiting the attention of the expert, more especially as to the question whether any of these blood-sucking flies in Africa, other than mosquitoes and tsetse flies, can become the hosts of parasites which undergo in them a developmental cycle, and which may become capable of transmitting infection to man and animals. Whatever grounds may have existed in the past for alleging that this country had been lagging behind other nations in respect of entomological research, we think that no one can now, with justice, make the charge in view of the work lately done by British entomologists, and in view of the recent action of the Colonial Office in establishing a central body of experts to carry out and control systematic investigation on the subject of the relationship of insects to diseases of man and animals in tropical Africa.

Physical Endurance.

IT is difficult to put limits to the power of physical endurance possessed by the human body. In circumstances that might well be expected to prove fatal men have survived, and sometimes with wonderfully little impairment of health and that only of a temporary nature. None of the lower animals can approach man in the adaptability which he thus exhibits to various and changing conditions. To-day there is much talk of polar explorations, and to-morrow the traveller who most focusses public attention will perchance have escaped from equatorial furnaces. Man has braved alike the hottest parts of the tropics and the extremest cold of either pole; he has traversed the arid deserts and the malarious swamps. He has survived deprivation of food to a point which is absolutely surprising—for weeks, if he has been able to obtain water, and even if deprived of water also his life has lasted for many days. The limits of such endurance are influenced by the measure of passivity. The most striking results have been obtained when no exertion has been needed for the preservation of life, as in the case of those who have been entombed in mines or under avalanches. But there are wonderful instances where life has been preserved in spite of extreme scarcity of food and water, while all the time great physical exertions have been necessarily made. The voluntary sufferings of the anchorites in the earlier centuries of the Christian era excite our surprise, not only because of the fanaticism which dictated the sacrifice, but even more because of the power of endurance which enabled the holy one to survive his miseries. SIMEON STYLITES, who for more than 30 years of the fifth century lived on the summit of a stone column 60 feet high, just not starving himself and exposed day and night, summer and winter, to the inclemencies of the seasons, is the best known among hundreds of such self-torturers, while he had many imitators, and a form of rivalry existed in the devising of unpleasant modes of dispensing with the ordinary comforts of life and of adding to the discomforts. The practice has died out for the most part from the Christian Church, but in India even at the present day may be seen examples of the self-infliction of tortures for the purpose of acquiring merit, though it must be explained that the pain really felt by the fakir is probably not always so great as it appears. This, indeed, is the case with all spontaneous martyrs. The sufferings, great though they may be, are voluntary, and at any moment the victim, if he may so be called, can return to the usual conditions, and pain is always more easily borne when the sufferer can put an end to it when he pleases.

In many cases, however, the powers of physical endurance are exhibited in circumstances where it is entirely beyond the power of those who suffer to bring them to an end. The annals of the sea contain innumerable instances where the survivors of wrecks have floated about for many days and even weeks exposed to a tropical sun and to the violence of storms, provided with only small quantities of food and water, rejoicing at being able to feast on a few barnacles found on a floating piece of timber, or at catching a few drops of water from a passing shower. Explorers, too, often undergo frightful exertions in making their

way into the unknown parts of the earth, where they are exposed to conditions of life which it would be thought impossible for the physique to sustain, as well as to want of food or water. The records of the exploration of the interior of Australia contain many instances of extreme privation, none perhaps more striking than the well-known expedition of BURKE and WILLS, although here both of the explorers died from starvation. Africa, too, has had its quota of brave explorers, who suffered countless hardships in making their way through unknown lands, and of these MUNGO PARK surely deserves to be specially named. Of all parts of the world, however, the polar regions are pre-eminently trying. Those who endeavour to penetrate the Arctic solitudes find the conditions more unfavourable to life than in any other region, and it is hard to imagine a greater test of the endurance of the human body than a prolonged stay in these high latitudes. Not only are all the comforts of civilisation wanting, but many of those things which are properly looked upon as necessities. Chief among these is warmth, for unless the body maintains its temperature all vital processes are impossible. For keeping the necessary temperature fire and the thickest clothes are indispensable, and these in a country where fuel is almost unobtainable and where every ounce of baggage adds to the extreme difficulties of transport. Food, again, is very scarce, a few bears and birds, and where there is open water some seals and fish can be obtained, but practically the whole of the food has to be taken with the explorer, and in this connexion it must not be forgotten that the diet has to be generous in order to keep up the heat-forming powers of the body. Water, or rather melted snow or ice, is indeed procurable, but it has often been shown that melted snow has a tendency to produce very harmful symptoms. It is clear that the lot of an Arctic or Antarctic explorer in many ways reaches the limits of human endurance, while the trials are not only prolonged but indefinite in their duration, yet the enthusiasm and the thoroughness with which these expeditions are undertaken and carried through are in the highest degree praiseworthy. We still have to wait for the detailed stories of the travels of Commander PEARY and Dr. COOK, but the records of the recent Antarctic expedition have been published, and must still be in the minds of all. The great cold, the violence of the wind, and the difficulties of exploring in such conditions must have impressed all readers, enabling them to realise the horrors of the great expedition led by Sir JOHN FRANKLIN towards the North Pole 60 years before. We have not, indeed, and never shall have, the full account of that story, but we can piece together the fragments which have been brought to light—the leaving the ships, which had been fixed in the ice 18 months, and the long weary march overland of the 105 who then survived. They had insufficient food, they had spent three winters in the regions of snow and ice, and the additional exertion of dragging heavily laden sledges proved too much. One by one they died on the way, so that ultimately not one survived of the 134 officers and men who had left England. But the zeal, the energy, and the perseverance they displayed are beyond all praise, and the physical endurance exhibited almost passes belief.

What qualities are of the chief value in enabling men to withstand excesses of heat and cold, shortage of food, and excessive physical exertion? In the first place, it is clear that mere muscular strength has but little influence, and from a consideration of many cases we are led to the conclusion that that type of man who is generally described as "wiry" is probably the best suited for any expedition where hardships are likely to be encountered. Simplicity in diet and more or less complete abstinence from alcohol seem also to be desiderata. Above all in significance comes experience; a personal knowledge of the general conditions which are to be met with, and a careful arrangement of the plan, with provision of a base supply, are also of the utmost importance. These things do away to a great extent with the feeling that the ordeal of pain to be endured is an indefinite one; they give to the expedition the cheer that comes of believing that by a certain time and in a certain place all will be well. There are many parts of the world which still appear as blanks on the map, and the restless energy of the human race will not be content till these are filled. Utilitarians may raise the question of the value of these expeditions, but in their stimulating effect on the ideas and feeling of the people, quite apart from the commercial value of any discoveries, there is, it seems to us, a return for the exertions and privations of explorers. And consideration of what man can endure gives us a just pride in the powers of the well-kept body, and a pleasant mistrust in the accuracy of many of the screeds about physical degeneration.

Annotations.

"Ne quid nimis."

TRAVELLING FACILITIES FOR THE BLIND.

ON August 7th the *Times* printed a letter from Dr. J. Fletcher Little calling attention to the action of a great railway company in issuing a printed form to be signed and stamped by all blind persons desiring to travel on its system. The form was intended to indemnify the company against any damages for injuries which might happen to the blind traveller as a result of his defective sight whilst using the railway's service, and it included an undertaking on the part of the traveller to provide a guide to see him safely in and out of the railway carriage at the different stages of his journey. Dr. Little had taken legal opinion upon this document and had been advised that even if it were signed it would not constitute a binding contract, as it gave the blind passenger no "consideration" in return for what he promised the company. He also pointed out that the weekly earnings of blind workers were quite insufficient, as a rule, to enable them to pay a travelling attendant to take them about when they lived a train journey from their work, and held up for an example to this country the practice of the Australian railways which carry attendants on blind passengers free of charge. Considerable interest was evoked by this letter, and during the present week the *Times* has followed it up by a report of a meeting held on Sept. 11th at the School for the Blind, Swiss Cottage, when a committee was formed for the defence of blind

travellers. Mr. F. O. Smithers, chairman of the committee of management of that school, who was in the chair, in opening the proceedings, said that in Scotland the railway companies gave reduced fares to blind passengers and he hoped confidently that a similar concession would be allowed by the English railways. Dr. Little described the facts of the special case which had aroused his warm interest in the matter, and remarked that since blind passengers are much more careful in entering and leaving carriages than many normal people the number of accidents happening to the blind on railways is very small. Several prominent workers in the teaching and training of the blind spoke supporting the objects of the committee, and the chairman suggested that they might be best attained by the introduction of a small Bill to Parliament. The matter has a special medical interest beyond that always attaching to the comfort and convenience of the blind, for many persons of both sexes thus afflicted are enabled to earn a living by massage, a most useful form of work for which their highly developed tactile powers seem to render them particularly suited. The sympathies of all people will be with such blind masseurs and other workers who are compelled to travel about to earn their living in the effort that is to be made to obtain for them special facilities for railway travel. We are quite clear that the railway companies ought to help rather than hinder blind passengers. Of course, it may be considered that it is unfair to ask the companies to take greatly increased risks, but we are not aware that Dr. Little's denial of the existence of such special risks in the carrying of blind passengers has been contradicted. Even if they do exist the percentage of blind persons using the railways is a very small ratio of the whole of the passenger traffic, and surely few shareholders would call their directors to account for manifesting such a spirit of corporate charity as would result in the lowering of fares and the granting of other special facilities for travelling to their fellow men and women whose journey lies always through the darkness.

UNCERTIFIED CAUSES OF DEATH IN LARGE TOWNS.

As a result mainly of the indispensable coöperation of coroners with medical officers of health, the proportion of uncertified causes of death in England and Wales continues to decline, but still shows a regrettable excess, even in some of the largest towns, where the practical difficulty of securing due certification is reduced to a minimum. During the eight years 1901–08 the proportion of uncertified deaths steadily but slowly declined in England and Wales from 18 to 14 per 1000; and in the 76 largest towns the proportion declined from 11 per 1000 in 1904 and in 1905 to 9 per 1000 in 1907 and in 1908. No one can doubt the importance, from many points of view, of the due certification of all causes of death previous to registration and burial, and the local variations in the proportions of uncertified deaths are therefore not without public interest. It appears from the recently issued quarterly return of the Registrar-General that during the three months ending with June last the proportion of uncertified deaths in the 76 large towns averaged 8 per 1000; but whereas all the causes of death were duly certified in 21 of these 76 towns, the proportion of uncertified deaths ranged upwards in the other towns to 44 per 1000 in Warrington, 49 in Handsworth, and 70 in Gateshead. The varying proportions in the ten largest of these 76 towns are especially noteworthy. All the causes of death were duly certified during last quarter, either by a registered medical practitioner or by a coroner, in Leeds, West Ham, and Newcastle-on-Tyne; in London and in Bristol the proportion of uncertified causes did not exceed 1 per 1000; it was equal to 4 and 9 per 1000, respectively, in Bradford and Manchester, and to 14 in Sheffield; while it was so high as 25 in Liverpool and 35 in Birmingham. The fairly constant relation between the proportions of inquests and of uncertified deaths suggests some explanation of the cause of the excess of uncertified deaths in some of the above-mentioned large towns, and points to the only remedy, short of legislative action, for this defect of our registration system. During last quarter the proportion of inquests held in the three large towns in which all causes of death were duly certified was equal to 9·0 per cent. in West Ham, 8·6 in Leeds, and 7·9 in Newcastle-on-Tyne; whereas in Sheffield, Liverpool, and Birmingham, in which the proportion of uncertified deaths was 14, 25, and 35 per 1000, the percentage of deaths on which inquests were held did not exceed 5·2, 6·8, and 4·5 respectively. This undesirable excess of uncertified causes of death in Sheffield, Liverpool, and Birmingham, and the low proportions of inquests held in the same towns, are intimately connected with the exercise by coroners of their discretion as to the necessity for holding inquests. Mr. Isaac Bradley, the coroner for Birmingham, recently gave some important evidence on this point before the Departmental Committee appointed to inquire into the law relating to coroners.

THE SIGNIFICANCE OF THE TEMPERATURE IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

WE publish in this week's issue of THE LANCET an instructive paper by Dr. S. Vere Pearson on the temperature as a guide to the treatment and prognosis of pulmonary tuberculosis. As long ago as 1893 Dr. J. Kingston Fowler showed the importance of the temperature chart in this disease as a guide to diagnosis of the type of the lesions and to prognosis. Within recent times the important progress made in regard to our knowledge of the processes of autoinoculation and the influence of rest and exercise upon them has invested the study of the temperature chart with a very important practical bearing upon the treatment of the case. It should now be generally recognised that a patient suffering from pulmonary tuberculosis associated with a febrile temperature should be as rigidly kept in bed as one with a more acute febrile disorder, and, indeed, as has been maintained by Dr. A. Latham and Dr. M. S. Paterson, who are quoted by Dr. Pearson, in certain cases the confinement to bed should be as strictly maintained as in enteric fever. The object of Dr. Pearson's paper is to emphasise the importance of this matter and to formulate rules based on his own personal experience, more especially in regard to the management of cases of the chronic fibro-caseous type. In regard to the mode of taking the temperature, he is emphatic in the view that the rectal temperature is the most satisfactory, and that if the mouth temperature is taken the thermometer must be kept in for a quarter of an hour at least, the mouth being kept shut during the whole of the time. He gives among the reasons for taking the rectal temperature in preference to the oral the facts that the record so obtained is more accurate, that the influence of exercise upon the temperature is more quickly and more effectively determined, and that the onset of relapse or complications is sooner recognised. In regard to the times at which it should be taken, he advises 7.45 A.M., 12 noon, 6.45 P.M., and 9.45 P.M., these times being adapted to the routine of life in the sanatorium with which he is connected, the first temperature being taken before getting out of bed and the last after the patient has been in bed for a few minutes. The general rule suggested by Dr. Pearson is to keep the

patient in bed when the morning temperature is above 98° and the evening temperature above 99·4° F. If one only of these temperatures is above the normal more attention must be paid to the elevation of the morning reading. He rightly urges that this rule should not be made too rigid, and that the temperature for several days should be taken into account as well as the general condition of the patient, his body weight, and pulse-rate. He recognises various different types of the diurnal variations of temperature, and he gives details of the influence of menstruation upon the temperature in women suffering from this disease. He also gives general hints as to the ordering of exercise to patients. All these points should be of interest to practitioners who have the charge of patients suffering from this disease, and although it is difficult to watch the manifestations so closely in private practice as in a sanatorium, it is highly desirable that the general principles of this form of treatment should be carried out for patients in their homes; and, indeed, patients who have been to sanatoriums are often anxious that this should be done. Dr. Pearson's paper, which is obviously the outcome of practical experience of the points he deals with, should therefore be valuable.

OLIVER WENDELL HOLMES AND THE DOCTRINE OF SEMMELWEIS.

IN a leading article last week we reviewed the work of Semmelweis as set forth in Sir William J. Sinclair's book on the life and doctrine of the Hungarian master. In a year which has seen the centenary of another medical teacher who was amongst the first to recognise and proclaim the infectious origin of puerperal fever, it is fitting that some reference should be made to his claims in this respect. The memory of Oliver Wendell Holmes will necessarily live in the world of letters longer than in the world of medicine, for the charm and kindly humour of his "breakfast-table" *causeries* and the rare poetic quality of many of his graceful verses have, of course, delighted a far larger audience than were wont to attend his anatomical lectures at Harvard. But his early announcement and persistent teaching of the infective nature of child-bed fever are worthy of wide respect, even though we accept Sir William Sinclair's view that the late Dr. Cullingworth in his warm admiration for the man spread abroad too liberal a report of the share played by Holmes in the solution of the darkest of obstetrical mysteries. At the same time, all credit must be given to the "Autocrat" for his early and persistent preaching of the doctrine of child-bed cleanliness in America and for the use of his literary gifts to attract attention to the subject and to attack the practices which brought puerperal fever in their train. There seems no doubt but that Holmes's conception of the causation of puerperal fever was in reality that of the theory of contagion as it was held in England at that time, and that this was very far from the doctrine of Semmelweis in which in reality contagion, in the sense it was understood by the contagionists, played no part. We must confess, however, that we are somewhat inclined to agree with Sir William Sinclair when he points out that the eulogists of Holmes have allowed their zeal to carry them a little too far. There could be no possible question of any comparison of his contribution on the subject with the work of Semmelweis. All that Holmes wrote was true, but in it there was nothing that was new or original. At the same time, it is interesting to find that in America there were not wanting prejudiced and unbelieving opponents such as Meigs and Hodge, who attacked Holmes with much virulence. Dr. Meigs's position may be illustrated by a quotation from a lecture. Referring to outbreaks such as those described by Holmes he says: "I prefer to attribute them to accident or to Providence, of which I can form a conception, rather than to a contagion, as to which I cannot form any clear idea, at least as to this particular malady." That Holmes recognised that contagion could be carried from the cadaver of a patient dying from puerperal fever is clearly shown in the first rule he gives at the end of his essay, which, it must be remembered, was published in 1843, or four years before Semmelweis began the use of chlorinated lime as a disinfectant. It is that a physician holding himself in readiness to attend cases of midwifery should never take any active part in the post-mortem examination of cases of puerperal fever. It was also laid down by him that a physician attending the necropsies of cases of simple peritonitis or of erysipelas should not attend any case of midwifery without changing all his articles of dress, allowing 24 hours to elapse, and using thorough ablution. At the same time, it must be remembered, as Sir William Sinclair points out, that these rules might well have been copied from those of Lee, Copland, or Storrs, prominent upholders in England of the theory of contagion. After all, questions of priority are of little importance in this matter at the present day. There have been few, if any, great discoveries made in the history of the world which have not been suggested or foreshadowed by some thinker or writer years before coming to fruition; and all honour is due to Holmes for the part he played in endeavouring to lessen the shameful mortality from puerperal septicæmia which was prevalent in his day. As Dr. Cullingworth rightly said, we may give abundant honour to Semmelweis without forgetting the earlier and beneficent contribution to our knowledge which we owe to Oliver Wendell Holmes.

GLANDULAR FEVER.

THE term glandular fever was applied by Pfeiffer in 1889 to an infectious disease occurring usually in children between the ages of five and eight years, and associated with pyrexia, slight redness of the throat, and swelling of the cervical lymph glands. Since that time various epidemics of this disease have been observed, and in this country the condition has been studied by Dr. Dawson Williams who has described abdominal pain and tenderness as early symptoms. An interesting paper is published by Dr. J. Edward Burns of Baltimore in the *Archives of Internal Medicine* of August 15th, describing an epidemic of this disease which occurred in the children's ward of the Union Protestant Infirmary of Baltimore. There were nine cases in all, six occurring in hospital in children from two and a half to five years of age, the other three in the family of one of these cases after her return home—all three being adults. The first case in this family was the mother who developed the disease 24 hours after the return home of her daughter. No member of the family had seen the child for two and a half months previously. It would therefore appear that the incubation period may be as short as 24 hours, although it is usually stated to be from seven to nine days. There was some leucocytosis in all of the cases, the counts varying from 18,800 to 26,400. Differential counts showed a relatively greater increase in the small mononuclear elements than in the others, but the coexistence of other infections in some of the cases complicated the picture. Even after convalescence there seemed to be a relative increase in the small mononuclear forms, although the total leucocytes were only between 5000 and 8000. There was injection of the throat and tonsils in all of the patients, but no exudate. Cultures showed the staphylococcus aureus. In all of the cases except one there was enlargement of the glands on both sides of the neck, and the swelling appeared to extend on both sides at the same rate. Both the swelling and the tenderness appeared to reach a maximum on the third day. The upper glands of the chains anterior and posterior to the

sterno-mastoid muscle were those chiefly involved. There was stiffness of the neck in most of the cases while the tenderness of the glands lasted. The axillary and inguinal glands were slightly enlarged and hard in two instances. There was no suppuration in any of them. The occurrence of pharyngitis in all of the cases and the demonstration of the staphylococcus aureus in the cultures are regarded by Dr. Burns as suggestive of the portal of entry and of the causal agent, though he points out as opposing this view the fact that the small mononuclear leucocytes were increased, whereas in pyogenic infections the leucocytosis is usually from increase in the polymorphonuclears. None of his patients showed abdominal pain or tenderness, and only one case suffered from nausea and vomiting, though nearly all suffered from constipation.

METALLIC BALANCE IN SALINE APERIENTS.

IN recent years physiologists have drawn attention to the fact that in the blood the four physiological metals, sodium, potassium, calcium, and magnesium, are present in a constant ratio. Hence a solution of these salts in this ratio (Locke's solution) is now used as a perfusion fluid for an excised organ instead of the older "normal saline solution," which contains only sodium chloride, so as to avoid disturbing the normal metallic balance and diminishing the organ's efficiency. This solution contains NaCl 0·9 per cent., KCl 0·042 per cent., and $CaCl_2$ 0·024 per cent. Before use $NaHCO_3$ 0·02 per cent. is added. Magnesium is omitted, as its percentage in the blood is very low. In the *Intercolonial Medical Journal of Australasia* for July Professor W. A. Osborne very reasonably suggests that in the administration of saline aperients a similar principle should be followed. When a dose of magnesium sulphate is given the proportion of magnesium in the blood rises, as is shown by its increased elimination by the kidneys. Now the cells of the body are distinctly intolerant of magnesium, and its proportion in the blood is the lowest of the physiological metals. It has a paralysing effect on the nervous system, as is illustrated by its recent use by spinal injection to prevent the spasms of tetanus.[1] We may also refer to cases of poisoning by Epsom salts, published recently in our columns.[2] An animal poisoned by magnesium can be partly revived by administration of another of the "physiological metals," especially calcium, so as to bring up the ratio between the two to something approximating to the normal. Professor Osborne therefore suggests that saline aperients, particularly sulphates, should have the proper metallic balance. A solution so made of the sulphates of the four physiological metals would act as an aperient owing to its SO_4 ions, but in consequence of the low proportion of magnesium in the blood this metal will be practically absent and its special purgative action, which most pharmacologists admit, will be lost. The objection may also be urged that this solution would cause endosmosis into the intestine of chlorides of the same metals, which would be lost if catharsis occurred. Professor Osborne therefore suggests the addition to the balanced sulphates of a balanced chloride solution which considerably increases the palatability of the mixture. He proposes two formulæ—one for a mild aperient, the other for a strong one. The mild one contains the following percentages: Na_2SO_4, 0·99; K_2SO_4, 0·047; $CaSO_4$, 0·027; $MgSO_4$, 0·008; NaCl, 0·81; KCl, 0·04; $CaCl_2$, 0·023; and $MgCl_2$, 0·011. The strong aperient contains double the quantity of sulphates but the same quantity of chlorides. It is interesting to examine the natural saline waters from the standpoint of metallic balance; none of them even remotely suggest it. In Hunyadi Janos magnesium sulphate and sodium sulphate are present in almost equal amounts. In many waters, such as Pyrmont and Apenta, the magnesium sulphate exceeds the sodium sulphate. In Carlsbad water sodium greatly preponderates over magnesium, but the true physiological balance of the four metals is not sufficiently approximated. However, too much must not be made of Professor Osborne's criticism, which as yet is only academical. Suggestive as is his paper, he does not appear to have had the opportunity of putting the value of balanced saline aperients to clinical test, the test to which all the suggestions from the physiological laboratory must be submitted before their value can be appraised.

[1] THE LANCET, Jan. 23rd, 1909, p. 256.
[2] THE LANCET, April 24th, 1909, p. 1174.

QUACKERY IN HAMBURG.

THE figures published by the Medical Board of the free town of Hamburg bearing upon the prevalence of quackery afford an interesting insight into the conditions obtaining in a highly civilised country in spite of a high standard of education. From this report it appears that at the end of 1908 no less than 802 unqualified persons were registered as engaged in the practice of healing, or an increase of 105 over the number reported in the preceding year. Of the 105 persons who had taken up this, no doubt, lucrative branch of business, 79 had enjoyed a lower grade of education and 19 had attended higher schools, and their ages varied from 20 to over 70. Of the total number 506 were males and 296 females. The male medical quacks were recruited from the following professions: barbers, bath attendants, bakers, messengers, decorators, lightermen, gardeners, brass-founders, rat-catchers, tradesmen, waiters, cooks, basket-makers, nurses, farmers, painters, mechanics, locksmiths, shoemakers, sailors, potters, board-school teachers, and general workmen. Of the 105 new additions to the ranks 31 had already been convicted for various offences, including transgressions against the laws dealing with the sale of drugs, poisons, and patent medicines. It may be mentioned that the Republic of Hamburg has a population of 889,950, which means one *registered* unqualified practitioner to every 1109 inhabitants, as compared with 721 qualified medical men, or 1 to 1234. We wish that statistics were available regarding the extent of the practice of medicine by unqualified persons in Great Britain. Only the medical practitioner is in a position to appreciate the evils resulting to the public health by indiscriminate treatment by quacks. But if the figures illustrating the prevalence of quackery in different localities could be obtained we believe that the public would pay more attention to one of the main evils of our time.

SCARLET FEVER AND INFLUENZA.

IN another column we publish an interesting communication from Dr. Andrew Dunlop under the title of "Note on a Doubtful Case—Scarlet Fever or Influenza?" Dr. Dunlop records the cases of two children whom he was asked to see—a boy, aged eight years, and his sister, aged four years. The boy passed through a typical attack of influenza; the sister, who was taken ill on the same day, in addition to the usual symptoms of influenza, had a slight sore-throat, and an eruption closely resembling that of scarlet fever appeared on the face, neck, trunk, upper arms, and thighs. He thought it wise to treat the case as one of scarlet fever. The nurse, who was isolated with the girl, developed a well-marked attack of influenza. We agree with Dr. Dunlop that the girl's case was probably one of influenza with a scarlatiniform eruption. Various rashes have been described in connexion with influenza. Herpes is not uncommon, and a diffuse erythema is sometimes seen, and occasionally purpura, but it is unusual

for the erythema to be so intense as in Dr. Dunlop's case. His statement that influenza was prevalent at the time, but not scarlet fever, is of considerable importance. It is well known that the eruption of scarlet fever is liable to variations, and sometimes the true nature of the fever is only proved by someone who has been in attendance on the patient developing a characteristic attack of the fever. The question of a mixed infection might be raised. This subject has attracted considerable attention of recent years, especially in connexion with scarlet fever. Dr. F. Foord Caiger has pointed out that the fevers most likely to coexist with scarlet fever are diphtheria, chicken-pox, measles, whooping-cough, German measles, enteric fever, and mumps. Influenza is not mentioned, and we consider that in the case we are considering a mixed infection was unlikely. Dr. Dunlop's arguments in favour of influenza are well founded and we consider that the conclusion at which he arrived was in all probability the correct one.

WEBER'S TEST AND INTESTINAL PARASITES.

Dr. Guiart, Professor of Parasitology in the University of Lyons, and Dr. Garin, his assistant, publish in *La Semaine Médicale* of Sept. 1st a number of observations on cases in which Weber's test for indican in the urine gave a positive result where it seemed to be connected with the existence of an intestinal parasite (trichocephalus). They point out that if the mere existence of such a parasite is capable of giving rise to the condition in which a positive reaction is obtained, it is necessary, before drawing any deduction from the test, such as the probability of the existence of gastric or intestinal carcinoma, to examine the stools very carefully for the eggs of trichocephalus. They also think that even ascarides may cause the test to give a positive result. No similar observations seem to have been previously published, with the exception, perhaps, of some by Dr. Siccardi of Padua who examined the urine by this method in some cases of ankylostomiasis. The biology of the whip worm (trichocephalus dispar), which is said to be somewhat commonly found in the cæcum, especially in France, renders it very likely to be the cause of minute hæmorrhages in the intestine, which, though they may not of themselves be of any serious import, may very probably be sufficient to cause the test to succeed. In three cases of chorea examined by Dr. Guiart and Dr. Garin numbers of trichocephalus eggs were found and the test gave a positive result, whereas in all the other cases of chorea which were free from the eggs the result was negative. In one gastro-intestinal case with epileptic crises the stools were examined four times in three weeks, and trichocephalus eggs were always found, but the Weber test only twice succeeded. Dr. Guiart and Dr. Garin say that where trichocephalus eggs were present they never failed to find the Weber test give a positive result.

THE ITALIAN LEAGUE AGAINST MALARIA.

ITALY has at length combined and mobilised her forces, pathological, clinical, and hygienic, against one of her most formidable physical enemies; and at Milan, on Oct. 6th and 7th next, under the presidency of Dr. Guido Baccelli, she will declare "duly constituted" the Lega Nazionale contro Malaria. Her leading authorities in the three above-mentioned departments will be present, and before the formal declaration of the constitution of the "League" the special reports on the "Questione Scientifica e Legislativa della Malaria"—reports prepared by experts deputed *ad hoc*—will be heard. Then will follow the discussions, to be closed with a summing up of the conclusions arrived at, and to be embodied in an "order of the day." Every care has been taken that the League shall be representative in the most authoritative sense. Three special organising committees have been already formed at Naples, at Rome, and at Milan, the members of which are not confined to those several schools, but are reinforced from all the other centres, clinical and hygienic, throughout the kingdom. The whole movement, we are informed, originates with the "Commissione Ministeriele per gli Studi della Malaria," whose report was summarised and commented on in THE LANCET of August 21st of the present year (p. 563). The meetings at Milan preliminary to the formal constitution of the League will, it is said, "assume the importance of a veritable National Congress," which will command the attendance, as well as enlist the sympathies, of a public by no means limited to that of medicine and hygiene. The presence of those of other nationalities interested in a question not affecting Italy alone will, we are assured, be cordially welcomed. Indeed, no coöperation from whatever quarter can be other than acceptable if conducive to the effacement of an "opprobrium medicinæ" which has long lain heavily on the world, English-speaking as well as Italian.

FURTHER RESEARCHES IN ANAPHYLAXIS.

OF the many interesting discoveries which have been made in the field of immunity none are more suggestive or at the same time more puzzling than the phenomena of anaphylaxis or super-sensibility, induced in response to injection of foreign organic matter. The incubative period of some 12 days corresponds very closely with the average period of incubation in human infective diseases, which is, roughly speaking, a fortnight, and we may reasonably hope that further study of the experimental condition will throw light on this peculiarity of febrile disorder. Indeed our knowledge is not standing still. Further researches by Dr. Rosenau and Dr. Anderson,[1] to whom much of our previous acquaintance with this condition is due, show definitely that there is an interaction of two distinct bodies in anaphylaxis. Thus the addition of the serum of a sensitised guinea-pig to horse serum renders the latter more toxic to other sensitised animals. The duration of the sensitive state has also now been proved to last for long periods of time, as does the resistance to an infective disease after one attack. In the experience of Dr. Rosenau and Dr. Anderson a guinea-pig has been found super-sensitive to horse serum more than three years after the original injection. Heating the serum before injection does not impair its power of inducing anaphylaxis so long as coagulation is not effected. The influence of anæsthetic drugs in preventing the appearance of anaphylactic symptoms, originally maintained by Besredka in the case of ether, has not been found to hold good in the case of other narcotics, such as chloral hydrate, paraldehyde, and urethane, nor has magnesium sulphate any prophylactic influence.

A METHOD OF STAINING THE TREPONEMA PALLIDUM.

IN smear preparations the demonstration of the treponema pallidum usually entails considerable search, a fact which greatly reduces its value for practical clinical purposes. A large number of methods of staining smear preparations have been described. We have received a communication from Surgeon F. L. de Verteuil, R.N., describing a method devised by him which has given, he considers, somewhat better results than the methods in common use. He writes: "While experimenting on the effects of different stains on the treponema pallidum, I had the idea of applying a modification of the Levaditi method, which answers so well for sections, to smear preparations. In conjunction with Staff-Surgeon Lancelot Kilroy, R.N., I carried out a number of

[1] Bulletin No. 50, Hygienic Laboratory, United States Public Health and Marine Hospital Service, 1909.

trials with solutions of silver nitrate of various strengths and at different temperatures. We found that satisfactory results could be obtained by using a 10 per cent. solution of silver nitrate. The smears on glass slides are kept in the solution for an hour at a temperature of about 100° F., and then subsequently reduced by means of 5 per cent. solution of pyrogallic acid for 10 minutes. The preparations are previously fixed in absolute alcohol. A great disadvantage of the method for everyday use is the fact that the solution of silver nitrate has to be kept at a temperature of at least 100° F. for an hour. In one case we found the engine-room of the ship or the neighbourhood of the galley very suitable. In these preparations the treponemata are stained a dark brown, the connective-tissue cells yellow, while the various histological débris are deeply coated with metallic silver. It seemed to us that by this method the treponemata could be more easily found, and that their extremities and spirals were more distinct and clearly defined. In one of our preparations as many as six treponemata could be seen under one field of the microscope, a condition rarely observed in smears stained by Giemsa's or Leishman's stains."

RHYTHMIC MOTOR AND SENSORY PHENOMENA.

Dr. A. S. Percival, senior surgeon to the Northumberland and Durham Eye Infirmary, has recently tried to explain two examples of rhythmic phenomena, one motor, the oscillations of the pupil in retrobulbar neuritis, the other sensory, the colours produced by the rotation of the discs in Benham's top. The rhythmic oscillations of the pupil in retrobulbar neuritis when the retina is stimulated with light form the most important objective evidence of this disease. It has long been attributed to some alteration in the conductivity of the nerve fibres, but the exact rationale has not been satisfactorily explained. Dr. Percival compares it with the oscillatory discharge of a Leyden jar through a coil of wire of low resistance, the mathematical explanation of which was elucidated by Lord Kelvin. It is a purely physical solution of the problem and may be thought by physiologists to take too slight notice of the rhythmic activity of nerve-centres which has been shown by Dr. H. K. Anderson to account for the cognate pupillary phenomenon called "hippus." The analogy to the intention tremor of disseminated sclerosis will be generally admitted, but it is probable that both are more complex in their origin than the purely physical theory would predicate. The importance of the physiological element in such investigations is well shown by the erroneous conclusions arrived at by Forbes and Young in their elaborate experiments on the velocity of light by a modification of Fieuzal's method. They found that when the brightness of the point of light was increasing its colour was red, but when it was failing its colour was blue. They inferred that blue light travelled in air about 1·8 per cent. faster than red light. The phenomenon, however, is purely physiological and depends, like Benham's top, upon the intermittent stimulation of the retina with white light. The discs in Benham's top have black sectors with thin black concentric lines of varying length on the white areas. When the discs are rotated the lines appear coloured, the colour differing with the direction and rapidity of rotation. Professor G. N. Stewart, in some experiments performed in 1888 on Talbot's law, worked out the excitation curves for the three primary colour sensations. Applying these curves to the explanation of the colours observed with Benham's top, Dr. Percival concludes that they are due to irradiation. The retina in passing from the black to the white area undergoes a rise of excitation, and since the red curve rises most rapidly the black lines appear red. If the direction of rotation is reversed the retina undergoes a fall of excitation and the line appears blue. As will be readily appreciated, this explanation, which favours the Young-Helmholtz theory, cannot satisfy all those who are interested in the thorny problems of colour vision.

SERUM TREATMENT OF CEREBRO-SPINAL MENINGITIS.

OUR New York Correspondent reported last March the success which has attended the treatment of cases of cerebro-spinal meningitis with the serum prepared by Dr. Flexner and Dr. Jobling at the Rockefeller Institute for Medical Research,[1] and this is now confirmed by fuller statistical evidence published in the current volume of "Studies" from that institute. The total number of cases analysed is "393, of which 295, or 75 per cent., recovered, and 98, or 25 per cent., died." From infancy up to ten years of age the mortality steadily decreases—viz., from 50 per cent. to 11·4 per cent. After this age there is a rise in fatality to about 25 per cent. for all ages taken together. It is noteworthy that among infants under one year the disease is uniformly fatal apart from treatment by serum, so that a saving of nearly half the lives endangered is attributable to the remedy. As with other serums, it is desirable to make use of this preparation at the earliest possible period of the disease, the figures in this series showing that if the serum is given on one of the first three days the mortality is 16·5 per cent., whereas in cases treated on one of the four succeeding days it rises to 23·8 per cent., and in those treated still later to 35 per cent. The termination of the malady after injection of serum is usually by lysis, but in rather over a quarter of all the cases a sudden crisis ensued. After serum treatment the meningococci tend to disappear from the cerebro-spinal fluid, and those which are still found seem to have lost much of their vitality. Coincidently the fluid itself becomes clearer, while the blood shows a diminished leucocytosis. Rise in leucocytosis and increasing turbidity of the cerebro-spinal fluid are signs of evil import. The outlook of serum treatment of this disease is, therefore, distinctly hopeful, and it is incumbent on the practitioner to have recourse to the remedy in all cases without loss of time. Possibly, as was suggested by Dr. D. J. Morgan in a pamphlet upon which we recently commented,[2] some part of the good effects noticed may be attributable to the lumbar puncture alone, but the injection of a bactericidal serum in place of the fluid removed must have a definite effect in checking the growth of the infecting organisms.

A TELEGRAM from the Governor of Mauritius to the Secretary of State for the Colonies stated that 6 cases of plague, with 5 deaths, were reported during the week ending Sept. 10th.

THE Secretary to the Board of Education requests us to state that the supply of copies of the Revised Syllabus of Physical Exercises, which the Board had announced to be unavailable until the third week in September (THE LANCET, Sept. 11th, p. 817), has now been made by the printers and that copies are procurable from the Government sale agents.

THE Local Government Board has issued a circular and Order to the sanitary authorities of London to remind them of the powers conferred by the London County Council (General Powers) Act, 1908, for the appointment of women health visitors and to instruct them as to the regulations made by the Board with respect to such appointments. The Board attaches much importance to appointment of health

[1] THE LANCET, March 6th, 1909, p. 729.
[2] THE LANCET, July 17th, 1909, p. 156.

visitors in London, especially in view of the Notification of Births Act, 1907, and it trusts that advantage will be taken by the sanitary authorities of their powers under the Act of 1908 and the direction of the present Order.

A STATISTICAL SUMMARY OF THE WORKING OF FOURTEEN LONDON GENERAL HOSPITALS.

WE published last week an annotation upon a report recently issued by the King Edward's Hospital Fund for London on the ordinary expenditure of 66 London hospitals, a report which contains many figures of great interest to hospital managers and the charitable public besides our own profession. We now reproduce below portions of two tables contained in that report giving details of the accommodation and expenditure in 14 of the general hospitals in London having more than 100 beds. The figures are not to be compared with each other too closely as they stand, for in the report there are several pages of notes explaining special features in connexion with certain of the items of expenditure at various hospitals, but these qualifications do not detract greatly from the comparative value of the tables. Their accuracy is assured on the best authority, since the figures were compiled by the hospital officials or extracted from their published reports. In dealing with the expenditure we have only printed the sum in pounds under each item, leaving out the odd shillings and pence. Besides these tables the report contains sections dealing with the smaller general hospitals, the hospitals for consumption, the hospitals for women and children, the ophthalmic hospitals, the hospitals for nervous diseases, and the cottage hospitals in the metropolitan area, besides sections on laundry expenses and on prices, followed by sundry appendices. We have already commented upon the main features of this carefully compiled document.

General Particulars relating to the Work and Accommodation of 14 London General Hospitals for the Year 1908.

Hospital.	In-patients.							Out-patients.			
	Beds.					Average number in daily occupation.	Average number of days each patient was resident.	Casualties	Total new out-patients.	Total attendances.	Average number of attendances per out-patient.
	Medical.	Surgical.	Special.	Paying.	Total.						
Charing Cross	60	72	18	None	150	136	22·8	10,878	23,226	75,477	3·24
Great Northern Central	48	90	17	12	167	146·75	24·17	5,955	27,543	78,847	2·86
Guy's	227	281	88	24	620	529·8	24·1	83,638	132,288	446,662	3·37
King's College	101	90	33	None	224	189	28	6,493	15,867	46,654	2·94
London	373	491	58	,,	922	799	20·91	145,351	242,875	607,271	2·50
Middlesex	151	143	11	,,	305	276	24·21	32,643	49,224	128,615	2·61
Royal Free	64	64	37	,,	165	146	25·7	24,597	36,258	101,241	2·79
St. George's	150	179	10	,,	339	302·18	25·2	28,759	41,934	113,790	2·71
St. Mary's	116	133	30	,,	279	261·7	23·6	25,627	49,532	133,992	2·70
St. Thomas's...	150	232	231	38	651	498·35	26·2	60,518	82,569	226,239	2·73
Seamen's (Dreadnought)... ...	114	114	22	None	250	209	44·6	9,714	16,141	70,671	4·37
University College	150	118	11	,,	279	248·5	26	36,358	51,369	133,269	2·59
West London	75	82	3	,,	160	145·27	23·34	22,190	38,297	135,959	3·55
Westminster	89	93	31	,,	213	183·15	26·95	9,855	20,801	71,374	3·43

Total Ordinary Expenditure of 14 London General Hospitals with an average of over 100 Occupied Beds for the Year 1908.

Hospital.	Beds occupied.	Maintenance.						Total administration.	Rent, rates, and taxes.	Total ordinary expenditure.
		Provisions.	Surgery and dispensary.	Domestic	Establishment charges.	Salaries, wages, &c.	Miscellaneous.	Total maintenance.			
		£	£	£	£	£	£	£	£	£	£
Charing Cross	136	3,732	1,855	4,693	870	4,655	483	16,290	1453	578	18,322
Great Northern Central	148	3,819	2,319	3,607	668	4,541	277	15,233	1823	446	17,504
Guy's	529	13,117	7,380	11,696	11,189	16,010	973	60,366	2383	3026	65,775
King's College	189	4,993	2,386	4,690	674	5,623	292	18,661	1022	469	20,153
London	799	23,293	12,519	18,515	11,285	33,600	1786	101,001	8185	1603	110,790
Middlesex	276	7,082	3,034	6,838	3,420	9,134	626	30,137	1903	1829	33,870
Royal Free	146	4,771	2,157	3,930	608	4,799	201	16,468	1030	132	17,632
St. George's	302	9,082	4,211	8,200	1,869	13,651	691	37,707	2243	920	40,870
St. Mary's	261	6,216	3,755	4,955	1,253	8,795	314	25,291	1611	542	27,445
St. Thomas's	498	11,195	6,859	14,006	9,076	17,563	558	59,260	2142	2874	64,278
Seamen's (Dreadnought)	209	4,499	2,142	2,992	3,095	3,736	318	16,785	1676	335	18,797
University College	248	6,470	3,248	7,148	1,660	7,550	378	26,456	1104	960	28,521
West London	145	3,153	2,307	3,018	746	3,449	190	12,865	1023	458	14,352
Westminster	183	5,251	2,474	3,792	893	5,485	416	18,315	939	411	19,665

MEDICINE AND THE LAW.

Coroners' Inquests and Scientific Evidence.

AN inquest was held recently by Dr. F. J. Waldo at Southwark, to which a brief allusion has already been made in THE LANCET, at which attention was called to the lack of authority to coroners under the Coroners Act, 1887, to obtain the expert evidence which is necessary in some cases in order to establish with certainty the cause of death, and which is obtainable under modern conditions subject to the payment of a suitable fee. The Departmental Committee now considering the law relating to coroners has had its attention called to this point by several witnesses. At present a coroner has statutory authority to order a post-mortem examination "with an analysis of the contents of the stomach or intestines," and to pay a guinea for it with another guinea for giving evidence. It has been suggested in evidence before the Committee that this is only intended to cover, and in fact is only sufficient to obtain, a general and not very elaborate analysis by an ordinary medical man, which is not sufficient in an obscure case of poisoning possibly involving a charge of murder. In practice the difficulty of obtaining an analysis by an expert analyst arises out of the payment of a suitable fee which may not be refunded to the coroner. The London County Council has a schedule by which it allows £5 5s. in such cases, but only on condition that the analysis is made by a particular analyst, Dr. L. Freyberger; in suitable cases also the Home Office will afford assistance. At the inquest referred to it was not a question of poisoning but of making a bacteriological examination in order to ascertain whether the death was, or was not, due to Asiatic cholera. The symptoms of the deceased were consistent with his having died from cholera, and his illness had been notified as diarrhœa at an early stage to the medical officer of health in response to a request from him that he should be informed of all such cases. In the absence of bacteriological examination a verdict of "Death from natural causes" was returned, Mr. G. F. M'Carthy, who had attended the man in his last illness and had made the post-mortem examination, being of the opinion that his patient had been the victim of summer diarrhœa. He also deposed that this view was shared by the medical officer of health who had been present when he made the post-mortem examination. No doubt the attention of the Departmental Committee will be called to this inquest, and if it considers that a case of suspected cholera is a proper subject of a coroner's inquiry it will treat the question of bacteriological examination on the same basis as the analysis necessary where poisoning is believed to have taken place. Inquests on such occasions are not, however, common, and although "a sudden death of which the cause is unknown" presumably may cover a case suspected to be Asiatic cholera, it is to be hoped that fresh legislation will some day render the occasions on which an inquest is to be held rather more certain and less a matter of discretion than they are at present. The presence or absence of such a disease as Asiatic cholera ought in any case to be established beyond doubt. In the instance under discussion Dr. Waldo was able to order a post-mortem examination when he had decided to hold an inquest, but not before.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7762 births and 4027 deaths were registered during the week ending Sept. 11th. The annual rate of mortality in these towns, which had been equal to 12·9 per 1000 in each of the two preceding weeks, declined slightly to 12·8 in the week under notice. During the first ten weeks of the current quarter the annual death-rate in these towns averaged only 11·7 per 1000, and in London during the same period the rate did not exceed 11·3 per 1000. The lowest annual rates of mortality recorded in the 76 towns last week were 4·9 in Hornsey, 5·0 in Barrow-in-Furness, 5·2 in Willesden, and 5·7 in Burton-on-Trent; the rates in the other towns ranged upwards, however, to 18·1 in Norwich, 18·5 in Great Yarmouth, 18·9 in Hanley, and 19·6 in Tynemouth. In London the recorded death-rate last week was equal to 12·3 per 1000, and slightly lower than in the previous week. The 4027 deaths in the 76 towns last week were fewer by 39 than the number in the preceding week, and included 720 which were referred to the principal epidemic diseases, against 853 and 768 in the two previous weeks; of these 720 deaths, 526 resulted from diarrhœa, 73 from whooping-cough, 39 from measles, 38 from scarlet fever, 30 from diphtheria, and 14 from "fever" (principally enteric), but not one from small-pox. The 720 deaths from these epidemic diseases last week were equal to an annual rate of 2·3 per 1000, against 1·9, 2·7, and 2·4 in the three preceding weeks. No death from any of these epidemic diseases was registered last week in Bournemouth, Barrow-in-Furness, or in West Hartlepool; the annual death-rates therefrom ranged upwards, however, to 5·2 in Coventry, 5·3 in Bootle, 5·5 in West Ham, 5·8 in Warrington, and 6·9 in Wigan. The deaths attributed to diarrhœa in the 76 towns, which had been 429, 680, and 602 in the three preceding weeks, further declined last week to 526, but caused annual death-rates ranging upwards to 4·3 in Warrington, 4·4 in West Ham, 4·5 in Bootle, and 5·8 in Wigan. The fatal cases of whooping-cough, which had increased from 37 to 65 in the four previous weeks, further rose last week to 73; the highest rates from this disease last week being 1·2 in Derby, 1·3 in Coventry, and 1·5 in Wolverhampton. The 39 deaths from measles exceeded the number in the previous week by four, the highest annual rates being 1·3 in Newport (Mon.) and 3·3 in Coventry. The 38 fatal cases of scarlet fever exceeded the number in any recent week, and included nine in London and its suburban districts, four in Birmingham and King's Norton, eight in Manchester and Salford, and two in Tynemouth, equal to an annual rate of 1·9 per 1000. Of the 30 deaths from diphtheria, against 29 and 33 in the two preceding weeks, ten were recorded in London and its suburbs, three in Liverpool, and three in Manchester and Salford. Only 14 deaths were referred to "fever" last week in the 76 towns, against 16 in the previous week. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had been 2347 and 2377 at the end of the two previous weeks, had further increased to 2436 on Saturday last; 411 new cases of this disease were admitted to these hospitals during last week, against 245, 284, and 349 in the three preceding weeks. Of the 1139 deaths registered in London last week, 105 were referred to pneumonia and other diseases of the respiratory system, against 103 in the previous week, and were 23 below the corrected average number in the corresponding week of the five years 1904–08. The causes of 28, or 0·7 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during last week were duly certified in London, Manchester, Leeds, Sheffield, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, and in 52 other smaller towns; the 28 uncertified causes of death in the 76 towns included five in Birmingham, four in Liverpool, three in Preston, and two each in Brighton, Portsmouth, Sunderland, and Gateshead.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 852 births and 440 deaths were registered during the week ending Sept. 11th. The annual rate of mortality in these towns, which had been equal to 12·0, 12·7, and 13·8 per 1000 in the three preceding weeks, declined again to 12·3 in the week under notice. During the first ten weeks of the current quarter the death-rate in these Scotch towns averaged 12·5 per 1000, and exceeded by 0·8 the mean rate during the same period in the 76 large English towns. The death-rates last week in these Scotch towns ranged from 9·7 and 10·0 in Leith and Edinburgh to 14·2 in Dundee and 15·6 in Perth. The 440 deaths from all causes in the eight towns showed a decline of 54 from the number in the previous week, and included 56 which were referred to the principal epidemic diseases, against 59, 64, and 71 in the three preceding weeks. These 56 deaths were equal to an annual rate of 1·6 per 1000, which was 0·7 below the mean rate from the same diseases last week in the 76 English towns. The 56 deaths from these diseases included 35 from diarrhœa, eight from

diphtheria, five from scarlet fever, three from measles, three from whooping-cough, and two from "fever," but not one from small-pox. The deaths attributed to diarrhœa in the eight towns, which had been 26, 47, and 37 in the three preceding weeks, further declined to 35 in the week under notice; they included 20 in Glasgow, four in Paisley, three in Aberdeen, and two each in Edinburgh, Leith, and Greenock. The eight deaths from diphtheria were fewer by three than the number in the previous week; six occurred in Glasgow and one each in Edinburgh and in Paisley. All the five fatal cases of scarlet fever were returned in Glasgow, as were two out of the three deaths both from measles and whooping-cough. The two deaths referred to "fever" were also recorded in Glasgow, one being certified as enteric and one as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory organs in the eight Scotch towns, which had been 45 in each of the two preceding weeks, declined last week to 25, and were 19 below the number in the corresponding week of last year. The deaths in these towns last week included 21 which were referred to different forms of violence, of which seven occurred in Glasgow, six in Edinburgh, four in Dundee, and two in Aberdeen. The causes of 12, or 2·8 per cent., of the deaths in the eight towns last week were not certified; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·7 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 19·8, 20·4, and 19·0 per 1000 in the three preceding weeks, further declined to 16·8 in the week ending Sept. 11th. During the first ten weeks of the current quarter the death-rate in the city averaged 16·9 per 1000, whereas the mean rate during the same period did not exceed 11·3 in London and 12·1 in Edinburgh. The 128 deaths of Dublin residents registered during last week showed a further decline of 17 from the numbers returned in the two preceding weeks, and included 21 which were referred to the principal epidemic diseases, against 23, 37, and 25 in the three preceding weeks. These 21 deaths were equal to an annual rate of 2·7 per 1000, the death-rate from the same diseases last week being 2·2 in London and 0·6 in Edinburgh. Of these 25 deaths from the principal epidemic diseases in Dublin, 15 resulted from diarrhœa, two from measles, two from "fever," and one each from diphtheria and whooping-cough, but not one either from scarlet fever, or small-pox. The fatal cases of diarrhœa which had been 20, 30, and 20 in the three preceding weeks, further declined to 15 last week. Of the 128 deaths at all ages in the city, 29 were of infants under one year of age, and 37 of persons aged upwards of 60 years; the 29 deaths of infants showed a marked decline from the numbers in recent weeks. Four inquest cases and three deaths from violence were registered during the week, and 52, or 40·6 per cent., of the deaths occurred in public institutions. The causes of five, or 3·9 per cent., of the deaths in Dublin last week were not certified either by a registered medical practitioner or by a coroner; in London the causes of all the 1139 deaths and in Edinburgh of all the 68 deaths were duly certified last week.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff-Surgeons: P. H. Boyden and R. F. Clark to the *President*, additional, for survey on medical stores at Royal Victoria Yard, Deptford; E. C. Sawdy to the *Vivid*, additional, for disposal. Surgeon: B. S. Robson to the *Vivid*, additional, for disposal.

ARMY MEDICAL SERVICE.

Colonel John G. Harwood retires on retired pay (dated Sept. 15th, 1909).

ROYAL ARMY MEDICAL CORPS.

Lieutenant Robert G. Archibald to be Captain (dated July 30th, 1909).

TERRITORIAL FORCE.

Infantry.

8th Battalion, The Duke of Cambridge's Own (Middlesex Regiment): Surgeon-Lieutenant Thomas C. Cummins resigns his commission (dated July 20th, 1909).

Army Medical Service.

Lieutenant-Colonel Richard Harman Luce, from the 1st North Midland Field Ambulance, Royal Army Medical Corps, to be Colonel, on appointment as Administrative Medical Officer of a Territorial Division (dated April 19th, 1909).

Royal Army Medical Corps.

3rd Home Counties Field Ambulance: Captain George A. Edsell to be Major (dated August 20th, 1909).

2nd South Midland Field Ambulance: Hans Frederick William Boeddicker to be Lieutenant (dated July 1st, 1909).

3rd Wessex Field Ambulance: Lieutenant Alexander Milne-Thomson to be Captain (dated August 4th, 1909). Major and Honorary Surgeon-Lieutenant-Colonel Henry D. Brook to be Lieutenant-Colonel (dated August 18th, 1909).

For attachment to Units other than Medical Units.—Francis Raymond Mitchell Heggs to be Lieutenant (dated March 1st, 1909).

Attached to Units other than Medical Units.—Lieutenant John Alexander Preston, from the 3rd Home Counties Field Ambulance, Royal Army Medical Corps, to be Lieutenant (dated June 22nd, 1909).

Royal Field Artillery.

4th West Lancashire (Howitzer) Brigade: Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel Thomas F. Young resigns his commission and is granted permission to retain his rank and to wear the prescribed uniform (dated July 13th, 1909).

Royal Engineers.

Lancashire (Fortress): The undermentioned officers from the Mersey Division (Electrical Engineers) Royal Engineers (Volunteers), are appointed to the unit, with rank and precedence as in the Volunteer Force (dated April 1st, 1908): Surgeon-Captain John Wesley Lloyd and Surgeon-Lieutenant John Owen.

DEATHS IN THE SERVICES.

Lieutenant-Colonel John Wilkins Clarkson, I.M.S. (retired), on Sept. 2nd, at Lausanne, Switzerland, in his fifty-eighth year. He entered the service as surgeon in 1875, becoming surgeon-major in 1887, surgeon-lieutenant-colonel in 1895, and retiring in 1903. He served in the Afghan war of 1878–80 in Southern Afghanistan (medal), and he also took part in the Burmese Expedition in 1887–88 (medal).

INVALIDINGS IN THE NAVY AND TEETH DEFECTS.

The Admiralty having come to the conclusion that undue prominence has been given to defective teeth in determining the fitness of men for service in the navy, an order has been issued to the effect that in future the following rules will be rigidly observed:—1. No man is to be invalided out of the service for defective or deficient teeth unless the consequences have already rendered him unfit to perform his duty, and in all such cases the resultant disease is to be specified in the report of survey. 2. No man with defective or deficient teeth who is on draft for foreign service is to be invalided out of the service merely because he is rejected for draft on account of the state of his teeth.

TESTS OF EYESIGHT AND HEARING IN THE ROYAL NAVY.

In future, it is announced, the medical examination of men in the Royal Navy for draft will include eyesight and hearing tests. An order has also been issued directing that eyesight and hearing are to be periodically tested with a view of obtaining information for the assistance of commanding officers in stationing the crew for action.

THE OUTBREAK OF ENTERIC FEVER IN THE SOUTH OF IRELAND.

The serious outbreak of enteric fever among the officers engaged in the manœuvres in the South of Ireland is said to have been caused by the use of contaminated milk.

We understand that on the retirement of Brigade-Surgeon-Lieutenant-Colonel C. E. Harrison, honorary surgeon to the King, from the Grenadier Guards the appointment of Brigade-Surgeon-Lieutenant-Colonel in the Guards is to cease.

Correspondence.

"Audi alteram partem."

THE NATURE OF ANGINA PECTORIS.

To the Editor of THE LANCET.

SIR,—There is one class of case of angina which cannot be readily explained by Sir Clifford Allbutt's view that "the seat of the essential lesion is in the suprasigmoid aorta"; I refer to severe angina associated with mitral stenosis, which is independent of chronic renal disease or arteriosclerosis. In these cases the pulmonary vessels rather than the aorta would be stretched or diseased. We know that the strain on the pulmonary artery may be so great as to produce pulmonary regurgitation or atheroma. Further, it is significant that these cases show an obvious relationship between the severity or number of the anginal attacks and the pressure in the pulmonary circuit. When the right ventricle begins to fail the anginal attacks become less severe or less frequent. At the same time the pulmonary arterial blood pressure must fall, but that in the systemic arteries does not, because in the systemic circuit the cardiac failure is compensated, and generally over-compensated, by arterial vaso-constriction. It seems reasonable, therefore, to suppose that, if the essential lesion in angina is situated outside the heart, the site of the lesion in the cases referred to is in the pulmonary artery rather than in the aorta.

The fact that failure of the right ventricle lessens the anginal attacks in cases of mitral stenosis, and *vice versâ*, is opposed to the view that the attacks are due either to stretching of the cardiac muscle or to embarrassment of the coronary circulation. It is just when the right ventricle is most dilated and the coronary circulation is at its worst that the anginal attacks are least marked or may be absent altogether. Further, mitral regurgitation, which does not produce either pulmonary regurgitation or atheroma, but does lead to dilatation of the right ventricle and upset of the coronary circulation, has no special relationship to angina. These considerations seem to lend some support to the idea that the pulmonary artery may be the site of the essential lesion in cases of angina associated with mitral stenosis.

I am, Sir, yours faithfully,

Seymour-street, W., Sept. 10th, 1909. A. P. BEDDARD.

IMMUNISATION AGAINST CATARRH.

To the Editor of THE LANCET.

SIR,—At a time when the calendar reminds us of the approach of winter, with its too frequent accompaniments in the way of colds and coughs, a personal record of ten months immunisation against these evils will perhaps not be wholly uninteresting to the profession. I may begin it by saying that I have all my life been a frequent sufferer from "colds" of the ordinary type, but of considerable severity, commencing with 24 hours or so of feverish indisposition, and continuing through the ordinary stages of nasal catarrh. Fifty years or more ago I tried to render these colds abortive by complete abstinence from fluid, but found the remedy worse than the disease, and since then I have tried many other methods of treatment with very little advantage. During the last few years the frequently recurring attacks have assumed a more formidable character in the direction of early extension to the trachea. Soon after the onset of symptoms I have had sore throat, some obstruction of the Eustachian tubes, with tenderness on swallowing, and then an irritating tracheal secretion comparable to birdlime in its tenacity, and occasioning prolonged and exhausting paroxysms of coughing which have produced some amount of emphysema of the lungs. I began to regard the whole process as an instalment of the force which Nature would gradually exert for my extinction; and my attention was first directed towards a more hopeful view by the perusal of the chapter on Catarrh in Dr. R. W. Allen's treatise on "Vaccine Therapy," the chapter which he soon afterwards expanded in your columns. In consequence of this perusal I consulted him, and he gave me for subcutaneous injection killed cultures of *Bacillus septus*, *Micrococcus catarrhalis*, and *M. paratetragenus*. I took the first injection on Nov. 10th, 1908, and the second on Dec. 1st. Up to the first week of January I remained free from trouble, but then had a little cough, with a small amount of loose and easy expectoration, and some increase of nasal secretion, but no feverishness or malaise. Dr. Allen made a culture from my expectoration, and I injected a dose on Jan. 9th, another on the 26th, and a third on Feb. 2nd. On Feb. 15th I noted "some tracheal irritation with teasing cough, and soreness on swallowing. Some obstruction of left Eustachian tube. Little or no tracheal secretion, but more from nasal passages." I took a full dose of the autogenous culture, and repeated it on March 8th. During the interval I had never been quite free from secretion, and on March 9th I sent Dr. Allen a specimen, which he found to be "swarming with *Bacillus influenzæ*." He made a fresh culture, which I injected on March 15th, and the symptoms disappeared. On April 17th a profuse nasal catarrh commenced suddenly about 7 P.M., the abundant thin secretion soon soaking a handkerchief, but it began to diminish about 9 and had ceased by 10. The same thing occurred on May 18th. On June 23rd I had again been troubled for a day or two by occasional short periods of nasal catarrh attended by a little loose cough, and I saw Dr. Allen again. He found *B. influenzæ* and *pneumococci* in the sputum, and made a fresh culture, but pending its arrival I injected a dose of that made in March. On the 30th I injected a mixture of the March and of the new cultures, and repeated this mixture in increasing doses on July 9th, 20th, and 31st. Since then I have held my hand, and do not propose to inject again until November, unless symptoms should arise to call for action.

The general result may be summed up by saying that since last November I have been absolutely free from any trace of the febrile indisposition which is the usual forerunner of catarrh, and that I have been absolutely free from viscid tracheal secretion and from the harassing cough which it produces. I have had a few short periods of increased nasal secretion, probably due to successive infections which my phagocytes have been enabled by the injections quickly to subdue; and I have now and then had a slight cough with a little loose secretion. I cannot doubt that in March I was protected against an acute attack of influenza. During the ten months I have not had one "cold," and I have not been hindered for an hour in the pursuit of my usual occupations.

As the most convenient locality for self-administration, the injections were made in the left flank, either late in the afternoon or at bedtime; and they never produced any inconvenience, either local or general. For perhaps 24 hours, the spot was barely discoverable on pressure. In the hope that my experience may be useful to other sufferers, I have the honour to be, Sir,

Your most obedient servant,

R. BRUDENELL CARTER.

THE ULTRA-MICROSCOPE.

To the Editor of THE LANCET.

SIR,—It is advisable to make an early protest against the misuse of the term "ultra-microscope" by Mr. Hugh Wansey Bayly in his note on the Use of the Ultra-Microscope for the Early Diagnosis of Syphilis in your issue of Sept. 11th, p. 782. The same error has apparently been committed by the French writer referred to by him, and confusion and misunderstanding would result were the expression to be used in the same sense by other writers.

The "ultra-microscope" is an apparatus designed by Siedentopf and Zsigmondy to show the existence of particles which are beyond the limits of microscopic resolution—say less than $0 \cdot 25\mu$. Its principle is the illuminating of such particles by a very narrow and minute beam of light at right angles to the optic axis of the microscope, and by its means such "ultra-microscopic" particles as those found in gold ruby-glass have been made evident, and colloidal solutions investigated. The limit of visibility of such particles is bounded only by the means of powerful illumination at our disposal, not excepting sunlight, but it must be carefully borne in mind that the apparent size of objects thus seen is illusory and their appearance is that of diffraction discs

which bear no resemblance to the real structure. In this category come the "motes in a sunbeam" alluded to by Mr. Bayly.

The method of investigation of syphilis by means of a paraboloidal condenser belongs to a different category. Here we have merely the illumination by a special method of objects such as unstained bacteria, spirochætes, &c., which are too transparent to be readily observed, but which are otherwise well within the limits of microscopic vision and resolution. In fact, we are using the old spot lens or paraboloid adapted for use with high-powers or immersion lenses. The ordinary disc placed beneath the modern condenser is, for optical reasons into which I need not enter, ineffective with objectives of higher aperture than about 0·6 N.A.—say ⅛ to ¼ inch—but the special construction of the immersion paraboloid makes the use of higher powers quite feasible. The principle is that of annular illumination, whereby the central portion of the illuminating cone of light is blocked out by a stop, allowing only the peripheral rays, exceeding 1 N.A., to pass. The paraboloidal condenser is of course in immersion contact with the under surface of the slide, or such rays would be totally refracted and lost. As the aperture of the objective used does not exceed 0·95 N.A. the field by itself is therefore dark. But if a refractile object, such as an unstained bacillus, is placed on the slide, it will catch and refract in all directions these annular rays which are too wide to enter the objective otherwise, and so the bacillus will become evident in the field of view shining brightly upon a dark background. The effect is very striking, and has proved of real service, as recent articles in THE LANCET and elsewhere show, being greatly superior to the old methods of examination of "hanging drops" with closed iris diaphragm, but again we are dealing (though in less degree) with diffraction effects, so that the outlines and detail are blurred and inaccurate. "Oblique" illumination, alluded to by Mr. Bayly, means really illumination by a narrow beam of light passed obliquely through one side of a condenser in one direction only—let us call it a narrow segment of the annular illumination just explained. It is generally obtained by a narrow slot cut in one side of a disc completely covering the lower lens of an ordinary substage condenser.

A few hints on the use of these new immersion paraboloids may be of service. They are made by Beck and Watson in England, and Zeiss, Leitz, and Reichert on the continent, and there is little to choose between them. They cost £2 each. They come to so sharp a focus that slides of definite thickness (varying for each make of condenser, but generally about 1 millimetre) must be used. If dry lenses are used, cover-glasses of equally definite thickness (generally about 0·17 millimetre) are necessary, as objectives when used with this method of illumination are very sensitive to cover-glass correction. The paraboloidal condenser must be in immersion contact with the condenser and the film of oil is generally of appreciable thickness. As a higher aperture for the objectives than 0·95 N.A. is inadmissible (for reasons already explained) oil-immersion objectives must be fitted with a diaphragm so that their aperture is cut down to this, and any existing immersion objective can be fitted with such a removeable diaphragm or funnel at very small cost without interfering with its use for other purposes. The paraboloid must be carefully centred to the optic axis of the objective (generally by means of a faint ring engraved on its upper surface), and for this purpose either centring screws to the sub-stage, or paraboloid, or a centring nose-piece are necessary. A strong light, reinforced by an auxiliary condenser of the bull's-eye type is required. The small arc lamp of 4 ampères made by Leitz is very suitable, but quite good effects can be obtained by the incandescent gas lamp, or the Nernst electric lamp, and for auxiliary condenser a small flask filled with water and placed near the light will do fairly well. A blue glass screen or a few crystals of sulphate of copper in the flask improve the image greatly. Time spent in the careful preliminary adjustment of lamp, auxiliary condenser, and mirror, to ensure their all being in line, will be well spent. Dust and oil globules are even more evident than bacteria, and must therefore be carefully avoided. As thin a film of preparation as can be managed should be used, and the cover-glass pressed gently down, but without disturbing the uniformity of the film.

I am, Sir, yours faithfully,

F. SHILLINGTON SCALES, B.C., F.R.M.S.

Cambridge, Sept. 14th, 1909.

DOMICILIARY MEDICAL TREATMENT UNDER THE POOR-LAW.

To the Editor of THE LANCET.

SIR,—There were several statements in Dr. Major Greenwood's article in your issue of Sept. 4th on the reports of the Poor-law Commission which are very debateable. It appears to me to be very necessary to distinguish between the two points of view—firstly, that of the State or community wishing to alleviate distress, treat, and also prevent disease and premature death; secondly, that of the medical profession, rightly anxious that they shall be fairly remunerated for their work and that their incomes shall not be ruthlessly diminished by legislative changes. It must be admitted that no scheme can be free from all objections; that is but a necessary admission that we are but human. Neither does it help to dub a scheme "Socialistic" unless we all understand the same thing by this much-abused term. The roads are "Socialistic," and so, I suppose, is the Post Office.

The first point of view concerns us as citizens, and we have to consider what the effect of the proposals are likely to be on the community. Under present conditions there is much over-lapping, much abuse, and very much omission. Dr. Greenwood admits the justice of the Minority Report's impeachment of these conditions. In place of this the Minority recommends a scheme which will, if adopted, obviate almost the whole of these defects and automatically place under the respective committees the whole of the medically destitute. The coördination of the work under the registrar, and the duty of recovering, from those able to pay, the cost of treatment will tend to prevent abuse, a tendency which will also be increased by a factor I shall mention below.

From the second, or medical practitioner's, point of view the proposals of the Minority will, if adopted, ensure a largely increased employment of medical men by the authorities: there will be the county or borough medical officer at the head of each district; coördinated and technically subordinate will be "medical officers of health, hospital superintendents, school doctors, district medical officers, workhouse and dispensary doctors, and medical superintendents of Poor-law infirmaries." It is therefore plain that there will not be the "displacement" and "extinction" which is freely being talked about by some of those who are opposed to, and ignorant of, the proposals.

Dr. Major Greenwood postulates the free treatment of the whole of the working and lower middle class under the scheme. This is neither reasonable nor probable. If there is one thing medical men would agree to it is, that there is no accounting for tastes, and we may rest assured that in every district, except a scattered country one, there will be room for the independent practitioner, and to assume that there will be none but official practitioners in many districts is pure imagination for which there is not the slightest justification in the report of the Minority proposals. There are many other points I should like to refer to, but considerations of space forbid.—I am, Sir, yours faithfully,

London, W., Sept. 6th, 1909. H. BECKETT-OVERY.

THE EARLY SIGNS OF RHEUMATISM OF THE HEART.

To the Editor of THE LANCET.

SIR,—I should like to be allowed to comment shortly on the letter from Dr. Carey Coombs in your issue of Sept. 11th, p. 831. I am encouraged to do so by the evident desire of Dr. Coombs to get at the truth and his cordial welcome of criticism. I must first apologise for unintentionally misrepresenting him in my article under the above title. Many physicians have lately been inclined to attach great importance to inflammation of the myocardium in rheumatism and I must confess to being one of their number before I had carefully studied Dr. Coombs's paper. In my desire to combat their view I did not make it clear that Dr. Coombs had himself carefully distinguished between inflammation and poisoning. My dissension with him consisted only in my objection to his opinion that the myocarditis was almost entirely responsible for the poisoning. Of course, the more widely spread the inflammatory nodules the greater will be their

local poisonous action on the ventricular muscle. Dr. Coombs is practically our only authority on the distribution of these nodules, and I must reconsider my conclusions when he says they are more widely distributed than I supposed. With this wider distribution their local poisonous influence might be considerable in causing dilatation of the left ventricle and a loss of contractility in its walls—and the latter action would probably contribute to a fatal event. Still, the local poisoning will not explain the dilatation of the right ventricle, which must be due to toxins brought by the blood stream. If the blood stream is responsible for dilatation of the right ventricle it will have a similar action on the left, the dilatation of which would be partly due to general, partly to local, poisoning.

Dr. Coombs considers that "diphtheria is an intense toxæmia, whereas rheumatism is in all probability a not very toxic bacteriæmia." This is, in a sense, evidently true, for the toxæmia of diphtheria often kills (amongst other ways by poisoning the contractility of the heart muscle), while that of rheumatism very seldom kills. The difference may, however, be due rather to the quality than the quantity of the toxin. We have evidence that the rheumatic organisms produce a toxin, and we have also some evidence that this toxin attacks the tonicity of the heart muscle rather than the contractility, which means that it is less dangerous to life. It is possible that the different signs observed in early rheumatism may be due to a difference in the distribution of the nodules in the myocardium—that is to say, that a mitral systolic murmur would be produced when the nodules were numerous round the mitral ring; dilatation without a murmur, or with a diastolic bruit, when they were scarce or absent in this region but numerous elsewhere. Still, in all Dr. Coombs's 15 cases there was apparently a predilection for their occurrence at the basal rings, and if this always occurs I contend that my supposition, that widening of the mitral orifice is due to local poisoning but ventricular dilatation mainly to general toxæmia, gives the best explanation of the facts. One must remember that in discussing the early signs of rheumatism of the heart we are dealing with cases that recover, at least temporarily, while the pathological findings come from cases that have died, which presumably have been more severely affected. A complete examination of a rheumatic heart where death had been due to some other accidental cause would be very valuable.

It is satisfactory to learn that Dr. Coombs is continuing his investigations and we may hope for further results from him comparable in value to those he has already obtained.

I am, Sir, yours faithfully,

Sept. 13th. ALFRED M. GOSSAGE.

FRACTURE OF THE ANTERIOR SUPERIOR SPINE OF THE ILIUM.

To the Editor of THE LANCET.

SIR,—Your annotation under this heading in THE LANCET of Sept. 4th reminds me of a similar case which came under my notice in 1897, when accident-room dresser in the old Royal Infirmary, Newcastle-upon-Tyne. The patient was a big, strong lad aged 18 years. On the night of the accident he was running very quickly and exerting himself more than usual when he felt something snap above or about his left hip; as he expressed it, "he went out of his stride," and after struggling on for a few paces fell to the ground. When admitted to the hospital about an hour afterwards the lad complained of pain about the hip and walked very lame with both thigh and leg slightly flexed. On examination the anterior superior spine could be felt quite separated from its attachment to the ilium but with no wide interval, for crepitus could be easily elicited. Next day an incision was made over the site of the injury, when it was found that the separated fragment carried the attachment of the sartorius with it, while the abdominal muscles, attached to this part of the crest, were partially torn. The fragment was fixed to the ilium with silver wire. Recovery was uneventful, and in 1899, and again in 1906 when I saw this patient he was perfectly well and walked without any limp or disability.

The anterior superior spine is developed as part of the secondary centre from which the whole iliac crest arises, so that its separation is not complete without fracturing across the remainder of the epiphyseal plate. It cannot, therefore, be considered as a pure diastasis, as suggested in your annotation. The patient who forms the subject of this short communication was under the care of Dr. G. H. Hume, whose dresser I was, and I am much obliged to him for allowing me to use the notes that I made at that time.

I am, Sir, yours faithfully,

G. GREY TURNER,
Honorary Assistant Surgeon, Royal Victoria Infirmary,
Sept. 14th, 1909. Newcastle-upon-Tyne.

THE REFORM OF THE WEST AFRICAN MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—I have read with interest your abstract of the Report of the Departmental Committee of the House of Commons with regard to the remodelling of the West African Medical Service. It is gratifying to note that those in authority are still alive to West African interests and are intent upon raising the standard of the service as a whole to meet with modern requirements of tropical medicine and hygiene. From the native point of view it is, however, to be deplored that the Committee continues to think "imperially" and to adhere to the "No black man need apply" clause of its predecessor. With this condition of affairs I presume you and I are not here concerned. However, I have always been under the impression that with regard to the promotion of sanitary education in West Africa the department must needs find a useful ally in the qualified native.

It must be evident to the most unimaginative mind that in dealing with untutored races, where the "Be it enacted, &c., &c.," have failed and stringent measures are looked upon with distrust, as evidence the cablegram of the then Acting Governor during the outbreak of plague at Accra in the January of 1908, some form of appeal to the imagination and an easy way of making the pill less nauseous are by far the best. It was only in the preceding number of THE LANCET, July 17th, that I read the account of the efforts of the Gaelic League and Dr. Seumas O'Beirn in combating the evils of tuberculosis in Western Ireland. I hope my colleagues will not think it presumptuous when I say such methods are worthy of emulation in Darkest West Africa.

I am, Sir, yours faithfully,

J. H. COUSSEY,
for F. V. NANKA-BRUCE, M.B., Ch.B. Edin.
Dodowah, Gold Coast Colony, August 21st, 1909.

THE STRUCTURE OF THE PANCREAS IN RELATION TO FUNCTION.

To the Editor of THE LANCET.

SIR,—In the report of a paper bearing the above title by Dr. J. S. Goodall and myself, read before the Section of Anatomy and Physiology of the British Medical Association, published in THE LANCET of Sept. 11th, I am anxious to correct the concluding sentence. I am credited with saying "that the zymogenous cells (of the pancreas) are formed from the acinous type of islet cells." What I said was that "the *islet cells* arise from the disintegration of the zymogenous tissue." I suggested that this change may be the histological basis of the internal secretion of the pancreas, but that the islets when once formed show no signs of activity.

On the other hand, I pointed out that the islets in relation to the ducts show every sign of activity, but are embryonic in all vertebrates except elasmobranchs. These islets *may* possibly give rise to fresh acini, especially as it is from the duct that the growth of the whole gland primarily takes place—in fact, the appearances suggest this, although they do not prove it.

Finally, I advanced the view that the continuity of structure presented by the pancreas means continuity of function—that is to say, that the secretion of pancreatic juice and the control of carbohydrate metabolism are closely

related; in fact, that the assimilation of dextrose by the tissues is the direct sequel to the digestion of the foodstuffs.

I am, Sir, yours faithfully,

HERBERT G. EARLE, B.A. Cantab.,
Senior Demonstrator in Physiology, Middlesex Hospital Medical School.
Physiological Department, Middlesex Hospital, W.,
Sept. 11th, 1909.

"ETHER DAY."

To the Editor of THE LANCET.

SIR,—The writer of the annotation "Ether Day" in THE LANCET of Sept. 11th, so curtly dismisses the claims of Dr. Crawford Williamson Long to be the discoverer of the anæsthetic properties of ether that I ask space to put briefly forward the grounds on which his claims rest. Morton etherised a patient for Dr. John Warren in the surgical theatre of the Massachusetts General Hospital on Oct. 16th, 1846. Now the only question that arises is, Did any other person suggest the use of ether vapour inhalations as a general anæsthetic prior to this date? As an answer we have the affidavits of four southern gentlemen of Jeffersonville, Georgia, testifying that on March 30th, 1842, they were present whilst Dr. Long etherised Mr. James Venable, of Jeffersonville, and during the time of his being unconscious excised a tumour from the back of his neck. The witnesses were James E. Haynes, A. T. Thurmond, W. H. Thurmond, and E. S. Rawls. Mr. James Venable himself testified that the operation was painless. This was the first of a series of operations performed under etherisation by Dr. Long. He noted these in their sequence in his clients' book, and the book with the entries as made by him is still in existence. Dr. Long recognised the importance of his discovery, and with Ulster caution, for the Longs came from the province, he decided to make no premature announcement in the medical journals; he therefore deferred publication until he could demonstrate to his medical brethren that the anæsthetic effects were produced by ether and not by hypnotism or suggestion, and with a view to publication he invited his fellow practitioners to witness etherisation and how painless operation was under its inebriation. After he had performed a considerable number of operations under ether he prepared an article for the *Southern Journal*, Atlanta, Georgia, and the proof of that contribution is now in my possession, having been sent to me by the then editor. Some delay occurred in its appearance—both author and editor wishing that the anæsthetic properties of the drug might be demonstrated in one or more major operations. In the meantime, the announcement of Morton's "lethean" was published, and in this alone had Morton priority.

In considering what value is to be attached to Dr. Long's statements it is necessary to know the character he bore in his native Commonwealth of Georgia. His father, James Long, was a successful and wealthy planter, the friend of W. H. Crawford, American Ambassador to the French Court, and afterwards a candidate for the Vice-Presidency of the United States. Mr. W. H. Crawford was sponsor to Dr. Long. When Dr. Long settled in Athens, his intimate personal friend was A. H. Stephens, vice-president of the Confederacy. On the outbreak of the Civil War Dr. Long joined the medical service of the Confederate States and remained in charge of the Athens Military Hospital until Georgia was overrun by Sherman's troops. But so humane and skilful had he shown himself during the four years of war that the Federal Government made a special request that he would remain in charge of the hospital, and many northern families wrote thanking the kind and accomplished surgeon to whom they were indebted for the restoration to health of dear relatives.

I think we may safely say that Dr. Long was not the type of man to falsify evidence or claim honours not his by right, and we may truthfully say of him as was said of another: "He found the practice of ether inhalation an amusement of chemical lecture rooms; he left it the sovereign anodyne of the human race in its moments and hours of agony."

I am, Sir, yours faithfully,

Dublin, Sept. 13th, 1909. GEORGE FOY.

*** Our annotation did not attempt to deal in an exhaustive manner with the rival claims of Crawford W. Long, Charles T. Jackson, Horace Wells, and William Morton, although we endorsed the view that Morton's demonstration on Oct. 16th, 1846, could be regarded as the first practical step. The controversy is detailed at some length in Roswell Park's "History of Medicine."—ED. L.

AN EXPLANATION.

To the Editor of THE LANCET.

SIR,—The reference to Tidman's Sea Salt in your issue of this day will, we fear, convey an impression that it is synthetically manufactured to resemble sea salt. This is not so; Tidman's Sea Salt is actually made from the sea itself, and therefore, when dissolved in fresh water, yields an actual sea bath.

We remain, Sir, your obedient servants,

For TIDMAN AND SON, LIMITED,
J. J. FOX, B.Sc. Lond., Managing Director.

Bushell-street, London, E., Sept. 11th, 1909.

THE LIBRARIES OF THE ROYAL COLLEGES.

To the Editor of THE LANCET.

SIR,—The other day I went to the library of the Royal College of Physicians of London in Trafalgar-square, in order to look up some books of reference, and was informed that it was closed for the whole of September for cleaning. A day or so later I went to the library of the Royal College of Surgeons of England in Lincoln's Inn Fields with a similar result. Permit me to suggest that the Colleges might arrange amongst themselves, so that one library should be closed during August and the other during September. In this way the inconvenience of both libraries being closed during the same month would be avoided.

I am, Sir, yours faithfully,

Sept. 10th, 1909. M.R.C.S., L.R.C.P.

SUNDAY OPENING AT POST OFFICES.

To the Editor of THE LANCET.

SIR,—I read on page 12 of to-day's *Times*, under the above heading, that the Postmaster-General proposes, as from Oct. 3rd, to reduce the hours of Sunday opening from 8 to 10 A.M. to from 8.30 to 10 A.M., and that he believes that "this improvement can be secured without materially affecting the convenience of the public." I do not agree with him. I believe, and I am sure that the majority of my professional brethren will be with me, that this apparently trifling curtailment of the hours of opening will be most inconvenient to the medical profession and to their patients. My experience is that to send a telegram and get a reply to it on a Sunday the two hours of opening is only barely sufficient. Prior to becoming an asylum officer I was in general practice. As an assistant in a busy practice in a large Midland manufacturing town I recollect we used to telegraph for reply messages constantly on Sunday, although that district was, for that period, extremely well served by telephones. I bought a practice for myself, a typical country one, where two-thirds of the work was done in the saddle. Telephones were practically absent from the district, and what I should have done when I wanted a consultant in medical and surgical emergencies, or assistance in midwifery cases, had not the local post-masters been elastic in their ideas as to closing time, I do not know. For it must be recollected it is not only necessary to send a telegram but to receive an answer to it in most cases, and if the time of opening had been half an hour shorter it need not have existed so far as I was concerned. Since I have returned to asylum life I telephone all telegrams to the G.P.O., about a quarter of a mile distant, and I have noticed that although they are telephoned on the stroke of eight I rarely receive a reply much before ten, and sometimes I do not get one. Moreover, our seaside branch is just 100 miles from the main building, and is half a mile from the G.P.O., a fairly large one, at the other end. Prior to our being able to get this branch upon the telephone neither I nor my predecessor in office have ever yet been able to communicate with, and receive a reply from, the branch on Sunday. As regards telegrams received by me on

Sundays, all practically without exception, are urgent and require replies. Even although handed in at eight sharp I seldom get them before nine, and frequently my replies do not reach the original senders until the Monday. I should imagine that Sunday telegrams are few in number but great in importance, and that their necessity is like the necessity for carrying a revolver, as described by the Yankee, "You don't want it often, but when you do, you want it d——d badly." I have always had to work myself on Sundays, and am consequently far from being an advocate of any increase of Sunday labour, and I am consistent in this, as you will see by the fact that, though obliged to work on Sundays myself, I have only twice in my life had out on Sunday a trap or my car for purposes other than professional ones, and I have never played golf on Sunday either on a public course or our own private one.

I am, Sir, yours faithfully,

Sept. 7th, 1909. ASYLUM SUPERINTENDENT.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Porthcawl Rest.

THE additions to the Rest at Porthcawl, to which reference has already been made in THE LANCET,[1] were formally opened by Lord Tredegar on Sept. 7th. The two new wings give accommodation for 40 men and 12 women, so that there can now be received into the institution at one time 110 men and 52 women and children. The extensions also include a receiving-room, an office for the matron, a board-room and secretary's office, and a large assembly hall. The entire building has been lighted with gas, and gas and steam cooking appliances have been installed. In addition, the linen store-rooms are now heated with hot-water radiators and hot or cold sea-water can be supplied to the baths. The Rest has grown from very modest beginnings, having been founded in 1862 by the late Dr. James Lewis of Maesteg, who at first rented three small cottages. 12 years later land was given by the late Mr. C. R. M. Talbot upon which the existing buildings were erected, and extensions have been found necessary every 10 or 11 years. Some five years ago arrangements were made for the reception in the Rest of convalescent patients from the Cardiff Infirmary during the winter months, with the result that not only have the patients themselves been benefited but the beds they have vacated at Cardiff have become available for other cases. The Rest has always been well and economically managed, and there is no doubt that it plays an important part in lessening the sickness and death-rates of the county of Glamorgan. The healthiness of the district may be estimated from the fact that the death-rate of the Porthcawl urban district in 1908 from all causes was only 8 per 1000 and the infantile mortality-rate only equal to 65 per 1000 births, while the zymotic death-rate was 0·29 per 1000.

Housing in Tredegar.

At a recently held special meeting of the Tredegar urban district council it was decided to require the owners of 21 cellar dwellings to make such alterations to them as would secure for the occupants more sanitary conditions. The owners of other houses were urged by the council to carry out alterations without compulsion. This action of the council was no doubt prompted by the report which was recently made to the Local Government Board by Dr. J. Spencer Low as the result of an inspection which he made of the district. If no more vigorous action than this is taken by the sanitary authority very little improvement will result, and that there is room for a great deal of improvement is abundantly evident from the facts disclosed by Dr. Low. The manner in which slum areas and slum landlords have been created in Tredegar is not very creditable to those concerned. It appears that local colliery companies have sold old houses to the tenants and also to speculators, and the latter have taken advantage of the absence of workmen's houses in the district and have raised the rents of the older houses they have thus acquired. Reference was particularly made by Dr. Low to 82 cellar dwellings, 41 of which were actually erected for habitation as separate dwellings. They contained a living room and two bedrooms, the back room being in total darkness and through ventilation entirely absent. Other dwellings to the number of 36 were originally used as underground kitchens in connexion with houses above them, but they had been converted into separate habitations. These were also described as damp, dark, and insufficiently ventilated. Another class of dwelling which should receive the attention of the district council is the back-to-back house which has been transformed from a through or single four-roomed cottage by merely stopping up the doorway between the front and back rooms. One tenement is then served by the original staircase, while the other has provided for it a staircase little better than a ladder leading from the ground floor to the bedroom above. As Dr. Low points out, the result is that there is no efficient through ventilation, the smallness of the tenement leads to gross overcrowding, and as the occupiers of the front tenement are completely cut off from convenient access to the closets and slop drains, waste water, &c., is thrown into the gutter. Such dwellings as these are let at a rental of 4*s.* or 5*s.* weekly. About 100 new houses are being built in Tredegar yearly, and although they are usually let at a weekly rental of 7*s.* 6*d.* they are said to be much sought after and are occupied as soon as completed.

Sept. 14th.

[1] THE LANCET, April 24th, 1909, p. 1221.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Glasgow Cancer Free Hospital.

TO-DAY the first portion of the new extension to this hospital was opened. The hospital when first instituted consisted of an old manse and two adjoining villas, which were altered and reconstructed as far as the money available at the time would allow. These buildings up to the present have served the purpose fairly well, but owing to lack of sufficient accommodation for nurses and patients it was decided to erect a new hospital which would embody all the latest improvements in hospital construction. As the site of the old hospital, both as regards central position and elevation, was excellent, the new hospital when complete will occupy the same site. The first portion of the hospital now completed comprises a new block of wards and nurses' home. The block of wards contains four large wards, each of eight beds, and the arrangement of these is such that each ward obtains light from three sides, but principally from the south. At the south end of each ward there is a large balcony, and attached to each pair of wards there is a duty room with ward kitchen and linen cupboards close at hand. In addition, a large convalescent ward has been provided and nine single wards for patients requiring quiet and isolation. The floors of the wards are fireproof and of pitch pine. The dados are tiled to the height of six feet, while the upper walls and ceilings are in Keene's cement, enamelled, and with all angles rounded. The beds are of the balcony pattern, so that the patient can be wheeled to the theatre or douche room with the minimum amount of disturbance. The sanitary annexes are in towers cut off from the wards, and all the fittings are of the most approved pattern. An interesting feature is the presence on each floor of a douche room, fitted with sterilisers, &c., to which it will be possible to take, if necessary, any patient in her bed to get dressings or douche applied—a great advantage in some foul-smelling cases of cancer. The corridors are wide, with floors of terrazzo. An electric lift is provided for patients, while electric service lifts are placed at convenient parts of the building. In the basement is a large and well-fitted kitchen, one of the features of which is an electric fan to prevent the odour of cooking from travelling through the building. The roof of the block is flat and divided into two parts. On one portion which is open to the air patients will have the advantage of sitting out when convalescent. The other part is roofed with glass, and is so arranged and fitted as to make a most excellent research laboratory. This description applies entirely to the new east wing. In the centre the old building still stands, but is now to be taken down to provide room for more wards. The west wing, which is now complete, is a block of three storeys forming the nurses' home. Here each nurse will have a separate bedroom, and a dining-room is provided, and also

a suite for the matron. Behind the nurses' home, in a separate building, is the laundry, which is supplied with a destructor, steam steriliser, and all the latest electric fittings. In another separate building are a small mortuary and chapel. It may be mentioned that the heating throughout is by the "Reck" system, by means of radiators easily controlled. Now that patients can be moved into the new wing work is to be started at once on the remaining central portion of the building, which will contain the new operating theatres and should be completed in six months. The whole hospital then will be one of the most complete and up-to-date of its kind, thanks largely to the efforts of Sir George T. Beatson, chairman of the building committee, and Dr. Donald J. Mackintosh, whose services as consulting expert were secured by the committee from the outset.

New Infirmary for Perth.

A meeting of the subscribers to the City and County of Perth Royal Infirmary was held in the council chambers on Sept. 6th, when it was unanimously agreed to approve of the site in Western-avenue, Tullyhuish, for the erection of a new infirmary, and the directors were authorised to acquire it on the terms mentioned in the draft agreement submitted. A sum of over £15,000 had been subscribed for the reconstruction of the present building, but it was ultimately deemed advisable to go on with the erection of a new infirmary altogether on a different site. The directors have received a sketch plan from Mr. James Miller, A.R.S.A., architect of the Glasgow Royal Infirmary (at present being re-erected) and the designer of the Glasgow exhibition buildings. Mr. Miller estimates that a modern, up-to-date infirmary, with 120 beds, administrative block, and offices, can be erected on the site for £36,800. To meet that there is at present in hand or available a sum of £32,000. An endeavour is to be made to induce contributors of £6532 to the reconstruction scheme to allow their contributions to go to the new building, and if that is done there will be sufficient to meet the cost of the new infirmary.

A Medical Practitioner's Bequests.

The late Dr. Ferguson, Loftus House, Broughty Ferry, and formerly of Port Maria, Jamaica, has left a fortune of about £55,000. A very large part of his estate falls to be divided as public and private bequests. Ministers and churches bulk largely among the beneficiaries.

Sept. 14th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Home Treatment of Tuberculosis in Dublin.

THE quarterly meeting of the Hospitals' Tuberculosis Committee was held on Sept. 9th, Sir Arthur Chance being in the chair and Lady Aberdeen being also present. The report of Mr. J. T. Daniel, who had been placed by the Women's National Health Association at the disposal of the committee to attend cases that were receiving no medical aid, was considered most satisfactory. It was felt that in this way a great want was being met. A report was made on the work done during the last six months by the tuberculosis jubilee nurses working in Dublin. 247 patients have been attended; of these 125 were old cases and 122 were new cases. In all 3504 visits were paid to the patients' homes. Almost two-thirds of the patients themselves sought the nurses' aid, and patients' friends frequently ask for the disinfection of their homes. This is not to be wondered at when it is realised what is done for the patients through the Samaritan Committee in addition to the actual nursing—help and advice being given which enable patients to carry out medical orders in their own homes. 63 families received nourishment; 39 families received clothes, shoes, bedding, &c.; ten families' rent was paid while the bread-winner was under special treatment. 87 children of parents suffering from tuberculosis were sent to the country through the fresh air fund; three families of children were boarded out while the mothers were in hospital; 60 rooms were disinfected; five families were removed to more healthy homes; for seven patients work had been obtained; and 16 patients had been admitted to Newcastle. There were 66 families occupying one room, and in 35 families more than one member was affected. The total earnings of the families attended when the bread-winner is ill is estimated not to exceed 5*s.* a week on an average. Mrs. A. M. Sullivan presented a report on the work of the Samaritan Committee, and the nurse employed by the Terenure branch of the Women's National Health Association also made a report showing that the people amongst whom the nurses work are commencing to understand something about the nature of the disease, and are themselves assisting in trying to stamp it out.

Cork Council and the Notification of Tuberculosis.

At a meeting of the Cork corporation on Sept. 3rd the report of the medical officer of health recommending the adoption of Part I. of the Tuberculosis Prevention (Ireland) Act, 1909, was considered. This part provides for the compulsory notification of pulmonary tuberculosis. On the motion of Sir Edward Fitzgerald, and after a long discussion, the council decided not to adopt Part I. of the Act in spite of strong expert advice to the contrary.

Mullingar Asylum Committee: Claim of Surcharges.

At the monthly meeting of the joint committee of the Mullingar District Lunatic Asylum, which took place last week, a letter from the auditor of the Local Government Board was read asking why a surcharge of £4 15*s.* made by him at last audit on some members of the committee had not yet been paid, and intimating that legal proceedings would be taken if the amount were not promptly lodged to the credit of the accounts by the members who had been surcharged. A letter was then read from one of the latter stating his refusal to pay. The Chairman (in reply to the Most Rev. Dr. Hoare) explained that a contractor, whose tender for the supply of drapery goods had been accepted by the committee, subsequently refused to fulfil his contract and was released from his obligation by the committee. The goods were then ordered from another contractor, who charged the trade price, which was somewhat higher than that in the tender originally accepted. When the question of payment was brought under the notice of the official auditor he surcharged the difference. The chairman expressed the opinion that it was a monstrous proceeding on the part of the Local Government Board not to remit the charge. He did not mind the amount, which would be about £1 each, claimed from the members surcharged; it was against the principle that they should protest. After expressions of similar opinions from various members, and after it was pointed out that the first contractor had not signed a bond, the chairman moved:—

That this committee is of opinion that the surcharge in this case is unjust, and we recommend the three members surcharged to refuse to pay; and, furthermore, this committee refuses to accept responsibility where there are *bona fides* and an intelligent, honest effort to do what is right between the ratepayers and contractors.

This motion was unanimously adopted.

The Local Government Board and the Salary of the Medical Officer of the Trim District School.

The committee of management of the Trim District School has received a letter from the Local Government Board asking for information on the reasons which influenced the board of management in again increasing the salary of the medical officer, Mr. G. McManus, and pointing out that "no recoupment can be made in respect of any additional salary owing to the operation of Section 6 (1) of the Local Government (Ireland) Act, 1902." The committee has unanimously requested the Board to sanction the increase. The facts which formed the basis of the request were that Mr. McManus has been medical officer of the school from the time of its inception 19 years ago, during which time he treated over 2250 children for various illnesses, including cases of ophthalmia, measles, scarlet fever, whooping-cough, bronchitis, &c., and that only five children died during that time, the deaths being mostly due to tuberculosis; and that the medical officer has by his attention to the welfare of the children prevented any serious developments of disease occurring amongst them, thus saving the board of management a considerable amount yearly in connexion with nursing. It was further pointed out that it is now seven years since the medical officer got his increase of salary and that the earlier age at which children were sent to the school necessitated more frequent attendance than formerly, with the added consideration "that as the medical officer seems not to be entitled to a pension on account of his services, we consider it only fair that he should be given a

reasonable salary for discharging these duties, and we therefore consider that the increase of £13 a year granted to the medical officer is a very reasonable one." Most reasonable men will acquiesce in this view. The proposed addition would make the yearly salary up to £80, and the admirable record of Mr. McManus's services should surely appeal to the consideration of the officials of the Local Government Board, among whom, fortunately, are included medical men of high attainments.

Accident to a Belfast Medical Man.

Mr. J. S. Bryars (chairman of the Belfast board of guardians), while driving in Westland Row, Dublin, on Sept. 11th was thrown, owing to the skidding of an "outside" car on which he was sitting, on the tramway lines, and as a result had his right arm broken at the wrist and at the shoulder. He was able to proceed home in the evening and is progressing favourably.

The Derry No. 2 Rural Council and the Dairies Order.

On Sept. 11th, at the monthly meeting of No. 2 rural council of Londonderry, it was decided not to adopt the Dairies Order.

Sept. 14th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Sudden Development of Amaurosis in Typhoid Fever.

AT a meeting of the Société Médicale des Hôpitaux held on July 30th, M. Widal, M. Joltrain, and M. Weil stated that a patient under their observation suffering from typhoid fever had manifested unusual symptoms of amaurosis which, both in its onset and in its disappearance, was so sudden as to suggest the possibility of a hysterical origin. The patient, who was a man aged 20 years, had no previous history of visual disorder. He was under treatment for typhoid fever of the ordinary type and not associated with any sign of meningeal irritation; on the ninth day of the illness when he awoke in the morning his sight was entirely lost. It was then found that there was complete bilateral amaurosis with abolition of the motor reflex to light. Examination of the fundus revealed bilateral œdema of the papilla with marked venous dilatation. Lumbar puncture was followed by the escape of a clear fluid at very high pressure not containing either albumin or cells. An improvement of the visual disorder commenced two hours after the puncture was made, and became very obvious at the end of two days. The œdema of the papilla had now almost entirely disappeared, but the venous dilatation remained. A second lumbar puncture showed that the pressure exerted by the cerebro-spinal fluid, although greater than normal, was less than it had been. On the second day and subsequently the visual power was quite restored and the fundus was absolutely normal. The results of ophthalmoscopic observation, and the improvement which followed lumbar puncture completely disposed of the hypothesis of a neuropathic origin, and, moreover, showed that the increased pressure of the cerebro-spinal fluid was the cause both of the papillary œdema and of the amaurosis. Finally, by means of observations of the arterial pressure, which was always a little below normal, it was possible to separate this case from the class of transient amauroses studied by M. Vaquez in certain toxic conditions, especially in lead poisoning, because these amauroses depended on an increase of the arterial pressure. It was important to remember that in addition to the amaurosis of hysteria and lead poisoning there was an amaurosis of sudden onset and short duration which might show itself in the course of an infectious disease such as typhoid fever and was unattended by increased arterial pressure; this form of amaurosis was due to papillary œdema, as revealed by the ophthalmoscope, with increased pressure of the cerebro-spinal fluid. In such patients lumbar puncture not only gave a clue to the pathology of the condition but was a therapeutic measure producing an immediate improvement.

Clinical Investigation of the Hepatic and Intestinal Functions by Means of the Acetic Sublimate Reaction.

M. H. Triboulet some time ago called attention to the importance of the acetic sublimate reaction (*la réaction du sublimé acétique*) in the examination of fæces, and he returned to the subject at a recent meeting of the Société de l'Internat des Hôpitaux de Paris. He said that this was a simple and rapid process for determining whether a given sample of fæces was normal or abnormal. The green colour of oxidised bilirubin which was always seen in the fæces of very young suckling infants was replaced sooner or later by a pink tinge (*réaction rosée*), which was the normal colour for the remainder of the individual's life. Abnormal colouration might, however, be of many degrees. Complete pigmentary acholia yielded a fluid in the test-tubes as white as milk, while under different conditions the resulting test fluid might be of a greyish-pink, greyish-green, or yellowish colour; there might also be intensifications of the colour when an abnormal pigment (pink, red, violet, or brown) was combined with the normal pigment. Control experiments have shown that this abnormal pigment of excessive intensity indicated impairment of the functions of the liver. Weber's reaction with tincture of guaiacum or the phenolphthalein reaction indicated an incomplete transformation of hæmoglobin into bilirubin. These pigments were the products of a liver overburdened in consequence of the existence of pyrexia or toxic conditions. Apart from the differences in colour, the fluid from which the deposit had settled in the test-tubes was sometimes turbid, sometimes almost clear, and sometimes quite clear. Turbidity, whether attended with colouration or not, indicated that fat was being normally emulsified, and that the bilio-intestinal functions were acting well. The stercobilin reaction took effect principally in the intestinal contents in the neighbourhood of the ileo-cæcal valve, and the reaction of turbidity in those in the upper four-fifths of the ileum. With the help of these data it became possible in cases of digestive trouble or enteritis to recognise approximately the portions of the intestine which were implicated. When the acetic sublimate reaction was employed systematically in children's diseases, whether acute or chronic, it would be seen that the various pathological processes might be referred in a greater or less degree either to the bile-producing function of the liver or to certain segments of the intestine. By means of the colour reactions and the variations of turbidity a fairly exact appreciation of the functional activity of the liver and intestine might be made in the majority of clinical cases. It was admitted that the liver and the intestine were the defensive organs of most efficiency against disease in the human subject and that the younger the individual was the better was the defence. The prognostic indications based upon these reactions were therefore likely to be of great value.

Paroxysmal Tachycardia.

At a recent meeting of the Society of French Military Medicine M. Deleuze communicated a paper on Paroxysmal Tachycardia, and described the appearances seen at the necropsy. The attack began suddenly and without any assignable cause. The symptoms were violent epigastric pain, dyspnœa, and a slight deviation of the præcordial outline without increase of the cardiac dulness. The heart made 246 beats per minute; these were well defined and regular, without alterations of rhythm or adventitious sounds. The disease lasted for 15 days, at the end of which the patient died from failure of the heart's action. At no time did the number of beats fall below 220 per minute in spite of the various remedies that were employed, including digitalis, chloral, bromide, and morphine. At the necropsy no lesion either of the heart or the pericardium was discovered; the liver was slightly atrophied and cirrhosed; the kidneys and lungs showed the congestive lesions of asystole. The case was probably one of essential paroxysmal tachycardia and therefore a genuine neurosis.

Radical Operation for the Treatment of Fæcal Fistula.

Some time ago M. Savariaud communicated to the Surgical Society a memoir on the successful treatment of fæcal fistula, and at a meeting of the society, held on July 27th, M. Reynier presented a report on this memoir. The operation in question was not new, as it had been already performed by Biondi, by Jeannel, and by Nélaton senior. The spur having been crushed with an enterotome a circular incision was carried round the opening at a distance of two or three centimetres from the cicatricial area. This flap of skin was then raised and the loop of intestine was carefully

detached from the abdominal wall in such a way as to set it free without opening the peritoneum. The flaps of skin were then sutured with their epidermal surfaces turned towards the intestine and the whole was buried under another layer of sutures which included the subperitoneal cellular tissue. Finally, the abdominal wall was reconstructed in three layers. M. Savariaud had employed this method with complete success in two cases of fæcal fistula resulting from surgical operations. M. Tuffier said that he did not agree with the author of the paper. When a fæcal fistula was to be closed he preferred the simpler method of performing laparotomy at some distance from the fistulous opening; he then examined the region implicated, freed the coil of intestine, resected either the fistulous portion or the entire coil, and restored the continuity of the bowel by suturing healthy tissue. In the discussion M. Picqué, M. Potherat, M. Broca, and M. Morestin said that they were in general agreement with M. Tuffier.

Sept. 13th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Injurious Effects of Sun-baths.

Professor Grawitz, physician to the Charlottenburg Hospital, writing to the *Deutsche Medizinische Wochenschrift*, draws attention to certain injurious effects caused by sun-baths. He points out that, contrary to the opinion of the apostles of so-called "natural life," a specific favourable action of sun-light on the organism or on the formation of blood has never been proved, and that the absolute harmlessness of the absence of sun-light even for many months has been demonstrated by the experiences of the various expeditions to the North Polar regions. On the other hand, he has had ample opportunity of satisfying himself that the action of sun-light when the uncovered body is exposed to it for hours together is prejudicial to the human organism. It has become a popular amusement in some parts of Germany, and especially in Berlin, for men of all ages to lie naked in the sun at the side of a river, entering the water from time to time, then returning to sun themselves on the bank, and so continuing for hours, in some cases with daily repetitions. Professor Grawitz has found that the votaries of this new therapeutic cult not unfrequently suffered from dermatitis, tachycardia, and irregularity of the heart's action. In some instances the area of cardiac dulness was increased towards the right side, the second sound of the heart was intensified, murmurs were heard at different cardiac orifices, and there was an abnormal tension of the pulse. Sometimes syncope occurred in consequence of cardiac insufficiency. The temperature of the patients was sometimes raised, but albuminuria was never present. There might also be headache and general debility continuing for several days. In other cases the sun-light had a marked action on the nervous system, causing nervous irritability in persons hitherto quite healthy, whose nervous symptoms disappeared as soon as the sun-baths were discontinued. Dr. Grawitz had observed the same kind of nervous irritability in healthy children on their return home from the seaside, where they had been in the daily habit of playing for hours in the sun. He recommended that the public should be warned against the indiscriminate use of sun-baths and against the advocacy of them by "nature treatment" fanatics.

Public Health of Prussia.

The report on public health in the Kingdom of Prussia issued by the medical department of the Prussian Government states that the number of births continued to decrease, as it has been doing for many years with the exception of the year 1906. The population is nevertheless perpetually increasing, the reason being that the death-rate decreases still more than the birth-rate. The mortality per 1000 living was 26·3 in 1878, 19·3 in 1902, and only 17·96 in 1907. The report, referring to the causes of this satisfactory state of things, calls attention to various hygienic improvements, such as better water-supply, better drainage, and better care for the working classes under the insurance laws. The report, however, points out that according to recent statistical research among the working population the mortality of children increases when the birth-rate is high, so that a high birth-rate is incompatible with a low death-rate and *vice versâ*. With respect to appendicitis, the report states that the number of operations has still more increased; whilst in 1905 and 1906 the number of patients treated without operation was greater than the number operated on, the contrary occurred in 1907; the mortality after operation has also decreased. These statistics of appendicitis are of course restricted to hospital patients, who alone are registered for statistical purposes. The death-rate from puerperal fever is 0·61 per cent. higher than during the previous year and is nearly the same as ten years ago, being about 10 per 1000. Hydrophobia has increased by 60 per cent. since 1902, the number of cases being 405. 260 of the above patients underwent the serum treatment, with the result that only two of them died. The report gives many detailed particulars as to the general hygienic conditions of the kingdom, the water-supplies, the housing of the population, and similar questions of interest to sanitarians.

The German Medical Press.

The German Physiological Association at its recent meeting held in Würzburg has adopted a resolution to the effect that the members of the association will henceforth neither subscribe nor write articles for any new medical journal. This remarkable decision has been arrived at in consequence of the fact that the number of medical periodicals is increasing to an alarming extent. The difficulty lies not so much in the number of the general medical journals, which are decidedly fewer than in France, but the German journals dealing with special branches of medical science are more numerous than in any other country. Every specialty has one or more weekly, fortnightly, or monthly journal, one or more "Archive" for longer and more detailed contributions, and one or more "Centralblätter" containing only reports of contributions published by other journals. This is not only the case for the old-established specialties, but also for the more recent branches of medicine. In order to fill their columns some of these journals must insert contributions which are for the most part quite unnecessary, and the drawback is that medical men desiring to keep abreast with the progress of medicine are compelled to read and to subscribe to a great number of journals because sometimes a valuable contribution may be found among a mass of unimportant articles repeating only what has been already published elsewhere. The resolution adopted by the German Physiological Association will certainly receive the approval of many medical men, and it is to be hoped that other medical societies by following the example thus given may do something to diminish the present plethora of periodical literature.

Sept. 6th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

Cholera Shadows and Measures of Precaution.

AT a recent sitting of the Consiglio Superiore di Sanità (the Senator Professor Todaro presiding) Dr. Santoliquido gave a full and interesting account of the precautions taken at the frontier and within the country in view of the approach of cholera. The interests of commerce and passenger traffic will not suffer from the enforcement of the said precautions—sanitary cordons and quarantine having given place to sounder, less vexatious, and more effective measures. These latter, according to Dr. Santoliquido, will take note of the quality of the travelling public. Little or nothing in sanitary experience has to be dreaded from the influx of well-to-do passengers whose personal conditions as a rule dispense the frontier authorities from more than the ordinary surveillance practised in view of imported disease, while the precautions enforced within the country itself suffice effectively to supplement the surveillance referred to. It is the caravans of workmen, or labourers returning from service abroad, that constitute, in sanitary experience, the real source of danger, consisting as they do of men poorly protected, poorly provided with means, constrained to live a "vita collettiva," exposed to risks in the matter of food and drink, and therefore an easy prey to the infections prevailing in the countries in which they are

temporarily employed. These caravans are now met before they reach the frontier; they are accommodated in special trains, expressly appointed for their reception. The trains in question are composed of new and well-constructed coaches of the third class, each coach furnished with a latrine which in turn is supplied with a liquid solution which, on pressing a button, can immediately flush the said latrine, and so disinfect all excreta which, finding their way into the ordinary channels of water, diffuse the pathogenic germs, in other words, the disease. Each train has an "isolation compartment" as well as a "stazione mobile" (a moving station) for disinfection, the arrangement admitting of accommodation for suffering or suspected cases and for their withdrawal to another part of the train when properly disinfected. A sufficient medical staff travels with each train, which reaches its destination without disturbance or delay. In addition to these measures on board the train there are sanitary stations at the frontier provided with every means of checking whatever may have escaped the sanitary surveillance or operations *en route*. Finally, there is the thoroughly organised system of "sanitary defence" within the country itself to guard against any infection that may have "run the blockade" above described—the *ensemble* of these precautions being calculated (*inter alia*) to reassure the public and so to obviate the panic which, if it does not actually invite the disease, is one of its most formidable auxiliaries.

"*Epileptoid Explosion.*"

The phrase is not more familiar to the pathologist than to the police force. One can hardly open a newspaper without encountering a paragraph describing some deed of violence, as often as not with fatal result, perpetrated by an epileptic or "epileptoid" subject whom the local authorities should have had their eye upon or even kept under ward. Dr. Tamburini, director of the Clinica Psichiatrica in the Roman School, has, among other well-inspired initiatives, proposed the institution of "Asili-Colonie" for the reception and treatment of the epileptic, not only in the interests of the sufferers themselves, but in those of the public, for whom the said sufferers are at once a standing menace and a rebuke. The same eminent alienist—and he has sympathisers and coadjutors in authorities like Lombroso, Morselli, and Bianchi—would strike at the root of this physical and moral upas tree and make all marriages null and void in which the contractors (one or other) were tainted with epilepsy, hereditary or acquired. Then again, he would subject the progeny of such marriages, if unhappily consummated, and at the earliest opportunity practicable, to medical examination, and if found so tainted he would set them apart for special surveillance and treatment, not only in justice to themselves but in justice to the healthy children with whom they might associate. Out of her population of (in round numbers) 32,000,000, Italy has no fewer than 40,000 certified epileptics—a total far below the reality, as is universally admitted. She has, therefore, no time to lose in adopting the wise policy proposed by her best alienists and so minimising the "miseria, vagabondaggio, e criminalità," which give her a "sinister priority"—statistically established—among her sister nationalities. In the British Isles, as well as in France and Germany, "Asili-Colonie," such as Dr. Tamburini, contemplates, have long been in evidence; nay, the United States of America, for the last quarter of a century, can point, in the State of New York, to a "colony for epileptics" due to the noble initiative of Dr. Peterson, an institution which Italy could not do better than imitate, and on a scale proportioned to her immensely greater need.

Sept. 11th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

An Effort of Government to Check the Drug Habit.

THE drug trade of the United States, so far as it is habit-forming, is to come under the control of the General Government. In coöperation with the various States the Federal Government is arranging a plan to stop the great increase in the sales of those drugs that lower the physical and moral stamina of the people. Opium, morphine, cocaine, chloral, and similar drugs are to be placed under the severest inspection, which the State Department is now engaged in drafting. It is also the intention of this [Government to make the crusade world-wide. The American delegate on the Opium Commission, which has been sitting in Peking, is preparing plans for a conference of the principal Governments at the Hague to take up the question of not only excluding opium, except that intended for medicinal purposes, but also the other deleterious drugs to which the people of all countries have become more or less addicted. It is the intention of the State Department, at the same time, to place the manufacture and importation of these habit-forming drugs under the inspection of a department of the Government. The Government will not rest with inhibiting the interchange of such drugs between States, but will place at the command of the health departments of the various States the information which it gathers, so that local traffic in such may be checked and ultimately eliminated.

Prevalence of Uncinariasis in the Southern States.

Recent researches in the United States show that 12·6 per cent. of the operatives in the cotton mills of the Southern States are suffering from uncinariasis. Of this class from 13 to 18 per cent. of those of maternity age are in a condition which prevents them from properly nourishing babies. Of the males of military age 5·8 to 20 per cent. are in a condition unfitting them for military service. Of the children 48·1 per cent. are suffering from an anæmia-producing disease which materially interferes with their capacity for study. It is stated that all through the districts infested with the hook-worm there is a class of people notorious for their lack of ambition, application, and effort, their thin, sallow, and unhealthy appearance, and their uniform poverty in the midst of natural fertility and plenty. Of those who live a large proportion grow up stunted in mind and incapable of physical effort, without incentive, hopeless, unequal to real exertion, and branded as lazy. Thus generation after generation, from originally strong and virile progenitors, families recede and eventually die out.

Dentistry for Children of the Public Schools.

The Health Department of New York has completed the examination of 500 children of the public schools between the ages of 14 and 16 years. Of these 486 were found to have unsound teeth. The number of unsound teeth discovered was 2808, of which 2551 might be saved by proper treatment. Only 25 of the 500 had ever had dental treatment. To remedy this evil it is proposed to establish dental clinics in the public schools. Physical examination of the public school children was carried out from Sept. 1st, 1908, to March 31st, 1909, and during this time 386,744 children were examined. Of this number 290,167 were found to be in need of treatment of a general character, and 206,290 had very defective teeth. It is believed that dental clinics will be educational besides affording immediate relief to the suffering.

A New Branch of Study for Medical Students.

The University of Minnesota has added to the regular curriculum of its medical students, who are to take a six years' course, a course of some 50 lectures, known officially as "Economic Conditions in Large Cities." The students are to take the course in the second term of their second year, just prior to their entrance into the regular medical course. The lecturers are the Director of the Economics Department, the General Secretary of the Associated Charities, and experts connected with existing institutions.

A Tuberculosis Sanatorium for Insurance Policy Holders.

New phases of the campaign against tuberculosis are daily occurring. The most recent and most novel is the application of the Metropolitan Life Insurance Company of New York to the superintendent of insurances for a permit to erect and manage a sanatorium for the benefit of its employees and industrial policy-holders. The company is prepared to expend $100,000 in the prevention of tuberculosis. It has already issued a pamphlet on the prevention and cure of tuberculosis to all of its industrial policy-holders and has formed its 11,000 agents into an organised corps of educators. The company argues that if from a family of six policy-holders one dangerous consumptive can be segregated the net gain to the other policy-holders of the company in lessened premiums and increased bonuses will more than pay for the maintenance of the sanatorium.

Sept. 4th.

Obituary.

SIR STEPHEN MACKENZIE, M.D. ABERD., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO THE LONDON HOSPITAL AND THE ROYAL LONDON OPHTHALMIC HOSPITAL.

Sir Stephen Mackenzie, whose death was mentioned in THE LANCET last week, had for many years occupied a prominent position among London physicians both as a clinical teacher and an original investigator. His father was Mr. Stephen Mackenzie, a surgeon at Leytonstone in the north-east of London, and he was born there on Oct. 13th, 1844. He lost his father, who was killed in a carriage accident, when he was only seven years old. His school education was received at Christ's Hospital in the City, and when it was decided that he should follow a medical career he entered himself as a student of the London Hospital, where he gained several scholarships, and on the completion of his class attendance was admitted M.R.C.S. Eng. in 1869. To obtain a university qualification he proceeded to Aberdeen, where in 1873 he took the degree of M.B. with highest honours, and after the usual interval proceeded to that of M.D. in 1875. In 1874 he had been admitted a Member of the Royal College of Physicians of London and in 1879 was elected a Fellow. In 1874 he began to act as medical registrar at the London Hospital, where his brother, the late Sir Morell Mackenzie, who had been some years assistant physician to the hospital, had just resigned on being appointed a full physician. In 1876 Stephen Mackenzie was appointed physician to the skin department of the hospital, becoming one of the assistant physicians. From the first he showed a spirit of eager inquiry into scientific problems. Directly after his appointment he sent a contribution to THE LANCET recommending the use of a mixture of vaccine lymph and glycerine ("glycerined lymph") for vaccination purposes. In the following month he wrote in this journal relative to certain points in the pulmonary and systemic circulations of the blood, and for many years we published contributions from his pen on different subjects. In 1877 he commenced to lecture on pathology and morbid anatomy jointly with Dr. H. G. Sutton, and in September of that year he was appointed examining physician to the London Orphan Asylum. In 1880 he became lecturer on the principles and practice of medicine, and contributed to THE LANCET a series of three papers on the diagnosis of tumours of the cerebellum, expressing views which involved him in a correspondence with Dr. Julius Althaus. In the London Hospital he had unusual opportunities for observing rare forms of disease, and in October, 1881, when he had become one of the physicians, he showed at the Pathological Society a patient suffering from filariasis. One result of his careful observation of this case was the discovery that the time of ingestion of food bore no relation to the periodicity of the parasite, but it was otherwise with the period of rest and sleep, for when the patient was up during the night and slept during the day the period of filarial migration was inverted. The subject of filariasis interested him very much and he made several interesting communications upon it and upon paroxysmal hæmoglobinuria to our columns; while he also delivered some excellent clinical lectures upon these subjects, upon dysentery, and upon pernicious anæmia. In all his work, clinical and literary, he displayed the excellent qualities of clearness and thoroughness, and his colleagues at the hospitals and his audiences at learned societies found this out as definitely as his patients at the London Hospital.

In addition to the subjects mentioned Sir Stephen Mackenzie took much interest in dermatology and in certain diseased conditions of the eye, being for many years physician to the Royal London Ophthalmic Hospital, then at Moorfields, but now in the City-road. His contributions to pathological knowledge and to therapeutics in both specialities were considerable. He was also a fellow or member of at least nine of the London medical societies, and was the author of a variety of important articles in Quain's "Dictionary of Medicine," Heath's "Dictionary of Surgery," and Allbutt's "System of Medicine." In 1891 he delivered the Lettsomian lectures on Anæmia.

In 1879 he married Miss Dulley of Wellingborough, by whom he had three sons and a daughter. He was created a knight in June, 1903. For several years of late, and while his intellectual powers were still in full vigour, he suffered greatly from asthmatic troubles, which eventually compelled him to relinquish active work. The end came after much suffering on Sept. 3rd, at Dorking, in Surrey, where he had been for a time residing with one of his sons. The funeral took place at Dorking Cemetery on Sept. 8th in presence of a large and sympathetic assemblage.

We are indebted to Sir Jonathan Hutchinson for the following appreciative notice of Sir Stephen Mackenzie's work: "Through a long series of years Stephen Mackenzie held a foremost position in the London Hospital College, and during that period it made continuous advance in prosperity and in professional esteem. He spared no pains to do well whatever he undertook and his judgment was sound and his energy untiring. His colleagues valued his services very highly, and during the latter part of Sir Andrew Clark's lifetime Mackenzie was his right hand. Nor was his appreciation by the students, with whom, in his capacity of dean, he came much in contact, less cordial. He made friends on all sides and had no enemies. Having been trained at the London from the earliest years of his professional life he knew its traditions and was familiar with all the details of its inner organisation. He had held almost every possible appointment in his upward progress on its staff. When in mid-career he was assailed by a slowly aggressive and incapacitating malady the disappointment and regret were general, for it had been ,universally hoped that he was destined to take position in the highest rank of the metropolitan profession. These hopes were dashed by the advent of asthmatic conditions which rendered it year by year increasingly difficult for him to climb the hospital stairs and almost impossible to continue the clinical teaching in which he delighted and in which he so much excelled. His pupils and friends were often pained to witness the breathless efforts which he made at the bedside to expound as in former times views which he rightly valued as the result of much study and long experience. Although I have mentioned in the first place Mackenzie's unstinted work in the service of the school, this was a matter of duty, and it was in that of the hospital that his chief pleasure was found. He was through life an indefatigable student of disease at the bedside. To this he was impelled alike by innate kindness of heart and sympathy with those who suffer, and by interest in the innumerable pathological problems 'formed for our searching.' His additions to our clinical knowledge were many. The yearly volumes of several of our most energetic societies would be definitely the poorer if all that Mackenzie wrote were omitted. He described well and accurately and was zealous to complete his narratives. I will venture to mention one of his papers as illustrating what I mean. In the Clinical Society's Transactions will be found a case recorded which is illustrated by a good coloured portrait. It is an example of a form of lupus which has almost wholly escaped the notice of others. It stands as a sort of connecting link between the two well-recognised types which have received the names of lupus vulgaris and erythematosus. If it were known (abandoning a much less suitable name for which I was myself somewhat responsible) as the 'Stephen Mackenzie type of lupus,' it might not only serve usefully as a nucleus of accretion but also to keep in memory the name of an earnest observer. Its use by his dermatological friends (whom it chiefly concerns) would, I cannot doubt, be for a few decades a source of real if somewhat melancholy pleasure to all who knew him in his prime. I have but to add that Mackenzie was no exclusive specialist in any branch, but took a keen and fruitful interest in all departments of medicine."

GEORGE DAVIDSON DEEPING, M.R.C.S. ENG., L.R.C.P. LOND., L.S.A.

Mr. George Davidson Deeping, who died at Hastings on August 19th, was at one time a prominent Essex practitioner. Born in 1848 at Newark-on-Trent, he was educated at the old Newark Grammar School. Subsequently he became a student at Guy's Hospital and obtained the diplomas of L.R.C.P. Lond. and L.S.A. in 1871, and that of M.R.C.S. Eng. in the following year. He was for some time house surgeon and resident obstetrical officer of Guy's Hospital. Removing to

Southend-on-Sea, he soon acquired an extensive practice. He became an Admiralty surgeon and was also consulting surgeon to the Victoria Hospital at Southend. A keen supporter of the Conservative cause, he took an active part in politics, and was placed on the commission of the peace for Essex. Retiring from the profession in 1900, Mr. Deeping went to reside at Hastings, where he took a great interest in all public affairs, and became an active worker for the Hastings and St. Leonards Conservative and Unionist Association, being the chairman of that body on several occasions. He was very fond of gardening and of books, and was the author of "On the Countenance in Disease." He has left a widow and a son and daughter, the son being Mr. Warwick Deeping, the novelist.

THOMAS AGMONDISHAM VESEY, M.B., A.B., M.Ch. T.C.D., M.R.C.P. IREL.

OUR Belfast correspondent announces the death of Dr. T. A. Vesey, a well-known North of Ireland practitioner, which took place at his residence, Rostrevor, on August 31st, after an illness of three weeks, from hepatic disease with complications. The deceased gentleman, who was the eldest son of the Rev. George Vesey, Rector of Inniscara, Co. Cork, was born on April 7th, 1840, at Glanmire, Co. Cork. He was educated at the Royal School, Dungannon, from which he obtained a classical exhibition on entering the University of Dublin, where he graduated M.B. and A.B. in 1864, and M.Ch. in 1865. In the same year he became a Member of the Royal College of Physicians of Ireland. He received his clinical training at the Adelaide and at Sir Patrick Dun's Hospitals, Dublin. For a period of 18 months after graduating Dr. Vesey was medical officer of Laurencetown Dispensary District, in Co. Galway, but on Jan. 1st, 1867, on being appointed medical officer of the Rostrevor Dispensary District—a post which he held for 42 years, until his resignation in May last—he came to reside in Rostrevor, Co. Down, where he remained until his death. He was also for several years, during the "seventies," surgeon to the Royal South Down Militia, from which he retired with the rank of surgeon-major. Dr. Vesey was a prominent member of the Masonic order, and a parochial nominator and a diocesan synodsman of the Episcopal Church. He was greatly respected by all classes, rich and poor, in Rostrevor and the surrounding district, where he enjoyed a large and valuable practice. He married a Co. Galway lady, who with a son and married daughter are left to deplore his death. His body was buried at Knotty Ash Cemetery, near Rostrevor, on Sept. 2nd, a large concourse of friends and patients being present to pay a last token of respect to one who was greatly beloved for his medical skill and for his many kindly qualities.

HORACE JOHN GOULD, M.R.C.S. ENG., L.R.C.P. LOND., L.D.S.

THE death occurred suddenly while attending a patient in the consulting-room at his Seaford residence, on Sept. 4th, of Mr. Horace John Gould, also of Hanover-street, London, dental surgeon to the Dental Aid Society. While in India some years ago he was professor of dental surgery and anatomy at the Medical College, Madras; also dental surgeon at the Madras Hospital and on behalf of the Church Missionary Society there. He leaves a widow and one daughter.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Hermann Friedrich Lossen, professor of surgery in the University of Heidelberg, at the age of 66 years. He had worked under Langenbeck in Berlin, Billroth in Vienna, Volkmann in Halle, and Simon in Heidelberg. He wrote a manual of "Fractures and Dislocations," and contributed numerous articles to Pitha and Billroth's great "Handbook of Surgery" and to Billroth and Lücke's "German Surgery."—Dr. J. A. Scott, formerly professor of clinical medicine in the Philadelphia Polyclinic.—Dr. Louis Balch, formerly professor of anatomy and of forensic medicine in Albany Medical College.—Dr. Herbert, surgeon to the Paris hospitals.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Florence:* Dr. G. Padoa has been recognised as *privat-docent* of Internal Pathology.—*Freiburg:* Dr. Morawitz of Heidelberg has been appointed Extraordinary Professor of Clinical Medicine.—*Genoa:* Dr. Florio Sprecher of Turin has been recognised as *privat-docent* of Dermatology.—*Groningen:* Dr. G. Schaltema has been appointed Extraordinary Professor of Children's Diseases.—*Munich:* Dr. A. Scheibe has been recognised as *privat-docent* of Otology.—*Rio de Janeiro:* Dr. Antonio Austragesio Rodigues Lima has been appointed Assistant Professor of Internal Pathology and of Clinical Medicine.—*Rome:* Dr. R. Alessandri, Extraordinary Professor of External Pathology, has been promoted to an Ordinary Professorship.—*Tomsk:* Dr. R. I. Venglovski of Moscow has been appointed Professor of Surgery.—*Turin:* Dr. A. Ceconi has been appointed Extraordinary Professor of Internal Pathology.—*Vienna:* Dr. Karl Schwarz has been recognised as *privat-docent* of Physiology, and Dr. Robert Bárány as *privat-docent* of Otology.

APOTHECARIES' HALL OF IRELAND.—The Quarterly Examinations will take place on the following dates: First Professional, Monday, Oct. 4th; Second Professional, Thursday, Oct. 7th; Third Professional, Monday, Oct. 11th; Final Professional, Wednesday, Oct. 13th. All entries should be lodged with the registrar, 40, Mary-street, Dublin, at least 14 days previously.—The Quarterly Preliminary Examination in General Education will be held on Friday and Saturday, Oct. 1st and 2nd.

THE REDRUTH (CORNWALL) MINERS' AND WOMEN'S HOSPITAL.—Mr. A. Lanyon, to commemorate his golden wedding, has given £1000 to the Miners' and Women's Hospital, Redruth.

THE HANDEL COSSHAM MEMORIAL HOSPITAL, KINGSWOOD.—It is stated that the Handel Cossham Hospital, Kingswood, near Bristol, will be shortly reopened, money having been received from the Chancery authorities for the purpose. The institution has been closed since May.

MANCHESTER HOSPITAL SUNDAY FUND.—The amount distributed among the medical charities of Manchester by the Hospital Sunday Fund this year is £3400. Last year the amount was £3300. The sums granted varied from £536 2*s.* 9*d.* to the Royal Infirmary down to £12 17*s.* 2*d.* to the Chorlton-on-Medlock Dispensary. 18 institutions shared in the benefits of the fund. Though an increase of £100 over last year is a matter for congratulation, it must be acknowledged that Manchester does not support this fund as her population and wealth might lead us to expect.

THE SALISBURY INFIRMARY.—The annual meeting of the governors of the Salisbury Infirmary was held recently. The medical report was satisfactory, and showed the excellent work performed by the institution. The chairman announced an anonymous gift of £1000, and stated that Mr. W. Singer had sent a donation of £50 on the occasion of his horse winning a race at Salisbury in July last, and Mr. A. Cunliffe, the racehorse trainer, also gave £50. The Marquis of Salisbury presented £20 in recognition of treatment received a casual patient while motoring through the city.

MUNICIPAL SLAUGHTER-HOUSE IN ZÜRICH.—The new municipal slaughter-house in Zürich, which can compare with the finest modern abattoirs on the continent, was opened a short time ago. All the butchers in town had to close their private slaughter-houses by order of the council. The municipality in 1903 voted a sum of £144,000 for the purpose, but owing to enlargements and improvements of the 14 separate buildings and modern accessories the sum of £240,000 was spent on these structures, which are situated on a plain on the confines of the town with good train and tram accommodation. An area of 11 acres of land was reserved for this purpose and provision was made for the possible enlargement of the buildings. The various buildings cover an area of 250 to 1000 square metres. The ice-house provides for a continual supply of ice and secures a temperature of from 36° to 40° F. in the largest

cooling rooms. All modern improvements with regard to disinfection, lighting, heating, and meat inspection have been provided for. As Zürich exports a great quantity of meat to France, especially Paris, this establishment is of more than local interest and forms an object of demonstration at the German Congress of Hygiene held this autumn in Zürich.

DEATH OF AN IRISH CENTENARIAN.—Norah Donovan, who died recently at Midleton Workhouse, Cork, was said to have been 103 years of age.

PTOMAINE POISONING.—At a meeting of the Bristol health committee held on Sept. 7th it was reported that 61 persons had suffered from ptomaine poisoning, caused by eating corned beef and pork which had been purchased locally.

DECORATION OF A COLLECTING DOG.—Last week the Mayor of Swindon (Wilts) decorated a dog belonging to a Great Western Railway employee with a silver-mounted collar in recognition of its work in collecting £130 for the local hospitals.

CONFERENCE OF AFTER-CARE COMMITTEES.—The National Association for Promoting the Welfare of the Feeble-Minded has convened a conference of after-care committees to be held at Leicester on Thursday, Oct. 28th. Members of boards of guardians are being asked to send representatives.

RE-INTERMENTS AT MANCHESTER.—Nearly 50 workmen were employed recently in exhuming 6000 human bodies from the old burial ground of St. Augustine's Church, Manchester, for re-interment in the Southern Cemetery. It is stated that the work was done with no ill-effects either to the men who did it or to the inhabitants of the neighbourhood.

EXHIBITION OF HYGIENE FOR THE MIDLANDS.—On Sept. 30th Sir William Bennett, K.C.V.O., President of the Incorporated Institute of Hygiene, will perform the ceremony of formally opening a permanent Exhibition of Hygiene, which is being established at Carlton-buildings, Paradise-street, Birmingham, under the auspices of the Midland Counties' Branch of the Institute.

THE COST OF VACCINATION.—At a meeting of the Barnstaple (Devon) board of guardians held on Sept. 10th a resolution was passed expressing the opinion that vaccination at the public expense should be confined to persons who were in the opinion of the guardians eligible for medical relief. It was decided to send a copy of the resolution to the President of the Local Government Board.

THE KINGSWOOD (GLOUCESTERSHIRE) DRAINAGE SCHEME.—A numerous company attended the public opening of the Warmley section of the Kingswood sewerage scheme on August 30th. The cost of the complete scheme, of which the Warmley section is the second half, is over £32,000. The works at Warmley have cost about £10,000, and comprise six miles of sewers.

SCHOOL NURSE FOR EASTBOURNE.—The medical inspection of school children at Eastbourne resulted in the necessity being shown of a school nurse being appointed, and accordingly a nurse has been elected to the position. The salary is £80 per annum, rising £5 yearly to a maximum of £100. The medical officer of health received 110 applications for the post.

IMPRISONMENT OF A QUACK.—A man, described as a "music-hall artist," was recently charged at Wigan with obtaining money by false pretences. He had professed to cure blind people by licking their eyes and giving them a lotion containing permanganate of potassium. In spite of his protest that he only desired to do people good, he was sent to prison for two periods of three months each, the sentences to run consecutively.

THE ILLUMINATING ENGINEERING SOCIETY.—The draft constitution of this society, having for its object the study of artificial illumination, was formally adopted on May 25th of this year. Professor Sylvanus Thompson has consented to become the first president of the society, and influential support has been received from many authorities on matters of illumination in this and other countries. Anyone interested in the objects of the society and desiring to become a member is invited to apply to Mr. L. Gaster, honorary secretary, 32, Victoria-street, London, S.W.

BATH SEWERAGE SCHEME.—A Local Government Board inquiry was held at Bath on Sept. 8th into the application of the Bath corporation for sanction to borrow £215,000 for purposes of sewerage and sewage disposal (including the execution of works in the parishes of Corston, Newton St. Loe, Saltford, Swainswick, Twerton, and Weston).

THE LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON).—An afternoon reception by the staff will take place in the library of the College from 3 to 5 o'clock on Friday, Oct. 1st. The recently added laboratories and class rooms for physiology, chemistry, and physics will be open for inspection. The old students' dinner will take place the same evening at the Savoy Hotel at 7.30 P.M., with Dr. F. J. Smith in the chair.

A SINGULAR CASE AT BRISTOL.—The Bristol city coroner held an inquiry on Sept. 7th, relative to the death of a man. Evidence showed that he suffered from pneumonia and was at times delirious. When the nurse was leaning over the bed the deceased jumped up and snatched a hat-pin from her cap and stabbed himself in the chest, the pin penetrating about three inches. A post-mortem examination showed that death was due to pneumonia and a punctured wound of the heart.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, PLAISTOW.—The Lord Mayor of London, Sir George Wyatt Truscott, will lay the foundation-stone of the new building of this hospital at 3 P.M. on the afternoon of Saturday, Sept. 25th. The cost of the work and furnishing will amount to £17,000, and with a sum of £3000 promised by King Edward's Hospital Fund, the committee will have available for the purpose £14,100. A deficiency of £2900 remains for public subscription.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—At the opening ceremony of the winter session, particulars of which were announced in THE LANCET of Sept. 11th, p. 724, Lieutenant G. H. Shackleton, C.V.O., will present the prizes. Admission to the ceremony will be by card only, and applications should be made to the secretary-superintendent, Mr. F. Clare Melhado, as early as possible, as the seating space will be rather limited. In the evening the customary banquet of past and present students of the Medical School will be held at the Trocadero Restaurant.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Housing and Town Planning Bill.

THE Housing and Town Planning Bill received a third reading from the House of Commons on Friday, Sept. 10th. The proceedings on the report stage and on the third reading were by the terms of the closure resolution compressed into a single Parliamentary day. Thus the discussion was even more restricted than when the Bill was recently in Committee of the whole House. The attendance of Members was small and the debate centred round a few of the provisions with regard to housing, which had on previous occasions been the subject of consideration. The third reading was obtained without a division. The Bill was subsequently sent to the House of Lords where it has now been read a second time.

Education (Physical Training) Bill.

Viscount HILL has introduced into the House of Lords a Bill "to provide for physical training in elementary, secondary, and continuation schools." It has been read a first time.

Sanitary Measures in India.

The report on sanitary measures in India during the year 1907 is issued as a Parliamentary Blue-book. It deals with the health of the European and native troops, of prisoners in gaols, and of the general population, and also with vaccination, medical institutions (including hospitals, dispensaries, and medical schools), lunatic asylums, and sanitation.

HOUSE OF LORDS.

TUESDAY, SEPT. 14TH.

Metropolitan Ambulances Bill.

Earl BEAUCHAMP, in moving the second reading of the Metropolitan Ambulances Bill (which has passed through all its stages in the House

of Commons), said that it had been the subject of inquiries by committees of the House of Lords and also of the House of Commons. An efficient ambulance service was much required in the metropolis, and the Bill would enable the London County Council to take steps to provide it. He understood that there was a strong feeling in some quarters that the Metropolitan Asylums Board should be the authority to carry out this service. However, the Asylums Board had to do with hospitals, and it was very desirable that people should not have any fear that they were using ambulances which had been conveying infectious cases.

The Earl of DONOUGHMORE said that he would not oppose the Bill at the present stage, but he gave notice that in Committee there would be an amendment proposed to enable the London County Council to come to an arrangement on the subject of a street ambulance service with the Metropolitan Asylums Board.

The Earl of ONSLOW thought that the London County Council in conjunction with the police was capable of administering a street ambulance service with perfect efficiency.

After some further discussion, the Bill was read a second time.

Housing and Town Planning Bill.

Earl BEAUCHAMP, in moving the second reading of the Housing and Town Planning Bill, made in the course of his speech a special reference to Part III., which dealt with county medical officers and the county public health and housing committees. The first clause of this part of the Bill (Clause 68) laid upon every county council the obligation of appointing a medical officer of health. By Subsection 5 this medical officer was to be removeable by the county council only with the consent of the Local Government Board. He was not to be appointed for a limited period. Many of their lordships who had taken part in the administration of local government must know the difficulties which medical officers and sanitary officers met with when they had to deal with property belonging to a member of the local authority employing them. It was unfair to lay upon the medical officer the duty of reporting unfavourably upon such property if within the next 12 months he could be removed from office. The demand that the medical officers for counties should be made irremoveable had been made for a long time by them, and the Government thought it desirable that their demand should be met in the Bill. Another clause in the Bill set up a public health committee, and the medical officer would be well qualified to assist it in its work. He commended the general Housing and Town Planning portions of the Bill to the House on the ground that they would conduce to the improvement of sanitation and public health.

The course of the subsequent discussion, in which several noble Lords took part, was, on the whole, favourable to the Bill, although there were criticisms of several portions of it.

Lord BELPER was one of the speakers. In the course of his speech he referred to the amendments which were to have been put forward by the County Councils' Association in the House of Commons, but which it had been impossible to move. Included amongst them was one relating to medical officers of health. The County Councils' Association took no exception at all to the provision that every county council should have a medical officer of health, but it did take the strongest possible exception to the subsection in Clause 68 which gave power to the Local Government Board to prescribe the duties of medical officers of health appointed by county councils. The county councils appointed them and paid them, and if any duties should be discharged by them these duties ought to be laid down by Act of Parliament. The Local Government Board should have no right to interfere. If it did interfere it would lead to friction. He sincerely hoped that the subsection would be left out, as well as another subsection in the same clause which gave the Local Government Board power to withhold consent to the removal of a medical officer.

The Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, SEPT. 8TH.

The Graduation of the Whisky Tax.

Sir ARCHIBALD WILLIAMSON asked the Chancellor of the Exchequer whether his attention had been directed to the fact that since the increased duty on spirits had been imposed inferior qualities of whisky, consisting chiefly of raw grain and new whisky, were now chiefly sold; and whether, in view of this and of the report of Lord Peel's Commission adverse to the sale of new whisky, he would take steps in the Finance Bill to graduate the tax according to age.—Mr. HOBHOUSE (on behalf of Mr. LLOYD GEORGE) replied: I have no information on the point referred to in the first part of the question. As to the second part, I can add nothing to the reply recently given by the Chancellor of the Exchequer.

Sir ARCHIBALD WILLIAMSON: Is the right honourable gentleman aware that without graduation the proposals of the Finance Bill will fall unequally on the distillers in Scotland and on Scottish and Irish farmers?—Mr. HOBHOUSE: I am not aware of that.

Mr. LEIF JONES: Is the right honourable gentleman aware that the Royal Commission on Whisky reported that the evidence taken before it failed to establish the statement that new spirit was more deleterious than old, and that any evil effects were more attributable to the quantity than to the quality consumed?—Mr. HOBHOUSE assented.

THURSDAY, SEPT. 9TH.

The Medicine Stamp Duty.

Captain CRAIG asked the Secretary to the Treasury whether he could state the amount of revenue derived from the duties on quack medicines in the years 1905–6, 1906–7, and 1907–8 respectively.—Mr. HOBHOUSE answered: The amounts of revenue derived from the medicine stamp duty, to which I take the honourable Member to refer, in the years 1905–6, 1906–7, 1907–8 were £324,112, £327,106, and £337,142 respectively.

TUESDAY, SEPT. 14TH.

The Vaccination of Infants in Workhouses.

Mr. PAINTER asked the President of the Local Government Board whether he had sanctioned the practice which obtained in most of the lying-in wards of workhouses of vaccinating infants within a few days of birth, to secure their vaccination before the mothers left the wards; and whether, in view of the risk to such young lives which must be associated with this practice, he would issue a circular to boards of guardians recommending the exhibition of notices in the lying-in wards informing mothers that they were not compelled to have their infants vaccinated before they were six months old, and that if the parents wished to secure exemption from vaccination altogether they might do so in the manner provided on the paper issued by the registrar when the birth of the child was registered.—Mr. BURNS replied: I am not aware that the practice referred to obtains in most workhouses. It has not been sanctioned by me. As my honourable friend knows, information is given to the parent with respect to the matters mentioned in the latter part of the question by means of the paper issued by the registrar when the birth of the child is registered. I doubt whether anything further is necessary.

Vaccination in the Dockyards.

Mr. LUPTON asked the First Lord of the Admiralty whether he would abandon the practice of making revaccination compulsory for candidates for employment in the Dockyard.—Mr. MCKENNA answered: I am considering the conditions under which vaccination on entry in the Dockyards is made compulsory, but in view of the difficulties of consultation during the period of the year ordinarily devoted to holidays I am unable to promise my honourable friend any early conclusions.

BOOKS, ETC., RECEIVED.

MARHOLD, CARL, Halle-a.-S.
Klinik für psychische und nervöse Krankheiten. Herausgegeben von Robert Sommer, Dr. med. et phil. IV. Band. 2 Heft. Price, pro Band, M.12.

MINING JOURNAL, THE, London.
The Recognition of Minerals. By C. G. Moor, M.A., F.I.C. With Monographs on Geology, Ore Deposits, &c., by Donald A. MacAlister, Assoc.R.S.M., F.G.S. Price 7s. 6d. net.

SAUNDERS (W. B.), COMPANY, London and Philadelphia.
The Illustrated Medical Dictionary. By W. A. Newman Dorland, A.M., M.D. Fifth edition, revised and enlarged. Price, flexible leather, 19s. net.; with thumb index, 21s. net.
The Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D. Sixth edition, revised and enlarged. Price, flexible leather, 5s. net.; with thumb index, 6s. net.

SCIENTIFIC PRESS, LIMITED, London.
How to Become a Nurse. Edited by Sir Henry Burdett, K.C.B., K.C.V.O. New and revised edition. Thirtieth thousand. Price 2s. net.

SMITH, ELDER AND CO., London.
The Sowers. By Henry Seton Merriman. Price 2s. net.
The Slave of the Lamp. By Henry Seton Merriman. With a Preface to the Series. Price 3s. net.

STANFORD, EDWARD, London.
British Rainfall, 1908. By Hugh Robert Mill. Forty-eighth annual volume. Price 10s.

STOCK, ELLIOT, London.
The Dawn of Christianity in Continental Europe, and the Planting of the Order of Knights of the Hospital of St. John of Jerusalem in England. By S. F. A. Caulfeild. Price 2s. 6d. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Dictionary of Ophthalmic Terms. With Supplement. By Edward Magennis, M.D., D.P.H. Price 2s. 6s. net.

YEAR BOOK PUBLISHERS, THE, Chicago. (G. GILLIES AND CO., Glasgow.)
The Practical Medicine Series, 1909. Under the general editorial charge of Gustavus P. Head, M.D. Volume IV. Gynecology. Edited by Emilius C. Dudley, A.M., M.D., and C. von Rachelle, M.S., M.D. Price 5s. net. Volume V. Obstetrics. Edited by Joseph B. de Lee, A.M., M.D., with the collaboration of Herbert M. Stowe, M.D. Price 5s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

AUBREY, THOMAS, M.B. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer for the Kelston and North Stoke District by the Keynsham (Somerset) Board of Guardians.

CAMERON, M., M.B., C.M. Glasg., has been appointed Medical Officer and Public Vaccinator to the Ceres Parish Council, Fife.

DAVIES, TREVOR BERWYN, M.B., B.S., has been appointed House Physician at University College Hospital.

GREIG, C. C., M.B., C.M. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the District of Fyvie, including the Civil Parishes of Methlick.

HEATHCOTE, HENRY CHARLES, M.B., Ch.B. Vict., has been appointed Medical Officer for the Newton District by the Keynsham (Somerset) Board of Guardians.

HERKLOTS, G. A., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Pocklington Board of Guardians.

JACK, J., M.D. Glasg., has been appointed Medical Officer to the Kilwinning Parish Council, Ayrshire.

MILLAR, A. P., M.D., M.Ch. R.U.I., has been reappointed Medical Officer of Health to the Nelson Town Council.

MORGAN, THOMAS WHITWORTH SEWELL, M.R.C.S., L.S.A., has been appointed Medical Officer of Health for the Priston District by the Keynsham (Somerset) Board of Guardians.

PRATT, CHARLES CLARIDGE, L.S.A. Lond., has been appointed Medical Officer for the Morchard Bishop District by the Crediton (Devon) Board of Guardians.

PRYTHERCH, J. R., M.B., Ch.B. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Llangefni District of the county of Anglesey.

RICHARDS, JOHN BARROW OSBORN, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been reappointed Medical Officer of Health for the Wadebridge (Cornwall) Urban District.

RISELEY, S., M.D., C.M. Edin., has been appointed Honorary Ophthalmic Surgeon to the Sheffield Institution for the Blind.

STIDSTON, C. A., M.D., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Assistant Surgeon to the Wolverhampton and Staffordshire General Hospital.

TAYLOR, WILLIAM PEACH, L.S.A. Lond., has been appointed Medical Officer for the Marksbury District by the Keynsham (Somerset) Board of Guardians.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and lodging.

BIRMINGHAM EAR AND THROAT HOSPITAL, Edmund-street.—House Surgeon for six months. Salary at rate of £70 per annum, with board, lodging, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—Two House Physicians, also one Obstetric and Ophthalmic House Surgeon, all for six months. Salaries at rate of £50 per annum, with board, lodging, and washing.

BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £100 per annum, with apartments, board, and attendance.

BOURNEMOUTH, ROYAL BOSCOMBE AND WEST HANTS HOSPITAL.—House Surgeon. Salary £30 per annum, with board, lodging, and washing.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—House Surgeon, unmarried. Salary £120 per annum, with board and residence.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing. Also House Surgeon. Salary £75 per annum, with board, lodging, and laundry. Also Surgical Registrar and Honorary Assistant Dental Anæsthetist.

BRITISH LYING-IN HOSPITAL, Endell-street, W.C.—Resident Medical Officer. Salary at rate of £50 per annum.

CAMBRIDGE UNIVERSITY, PATHOLOGICAL LABORATORY.—John Lucas Walker Studentship. Value £200 per annum.

CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeon. Salary £70 per annum. Also Anæsthetist. Salary 25 guineas per annum.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £70 per annum, with board and lodging.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at rate of £50 per annum, with board and residence.

CITY OF LONDON INFIRMARY AND WORKHOUSE.—Assistant Medical Officer. Salary £150 per annum, with apartments, rations, and washing.

CORK COUNTY SANATORIUM.—Resident Medical Superintendent. Salary £250 per annum, with board, residence, and laundry.

DERBYSHIRE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum.

DEVON COUNTY ASYLUM.—Third Assistant Medical Officer. Salary £140, with board, apartments, and laundry.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians and Two House Surgeons. Salaries at rate of £50 per annum, with board, residence, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and lodging.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—House Surgeon. Salary at rate of £60 per annum, with board, residence, and washing. Also Clinical Assistants.

FIFE DISTRICT ASYLUM, Cupar-Fife.—Junior Assistant Medical Officer. Salary £120 per annum, with rooms, board, and attendance.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and washing. Also Senior House Surgeon, Senior House Physician, Junior House Physician, and two Junior House Surgeons, all for six months. Salary of Senior Officers at rate of £45 per annum, and of Junior Officers at rate of £35 per annum, with board, lodging, and laundry. Also Anæsthetist. Salary 10 guineas per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

IPSWICH, EAST SUFFOLK AND IPSWICH HOSPITAL.—House Surgeon. Salary £65 per annum.

JERUSALEM, BRITISH OPHTHALMIC HOSPITAL.—Assistant Surgeon. Salary £300 per annum, with house.

KING'S LYNN, WEST NORFOLK AND LYNN HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

LEEDS UNION INSTITUTIONS, Beckett-street.—Assistant Medical Officer, unmarried. Salary £120 per annum, with board, washing, apartments, and attendance.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, lodging, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Also Junior House Surgeon. Salaries £100 and £60 per annum respectively, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried. Salary for the first six months £40, and for the second six months £50.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Salary of two former at rate of £40 per annum, and of two latter at rate of £20 per annum. Also Resident Anæsthetist. Salary at rate of £80 per annum. Also Assistant Physician.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Senior and Junior Resident Medical Officers. Salary of former £100, and of latter £50 per annum, with board and residence. Also Assistant Physician.

NEW HOSPITAL FOR WOMEN, Euston-road.—Pathologists; also Clinical Assistant (females).

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Physician, also Assistant House Surgeon. Salaries £80 and £20 per annum respectively, with board, lodging, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Two Assistant Resident Surgeons, unmarried. Salary £160 each, with apartments, attendance, light, and fuel.

OLDHAM INFIRMARY.—Third House Surgeon. Salary £80 per annum, with residence, board, and laundry.

RAINHILL, NEAR LIVERPOOL, COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, attendance, and washing.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with rooms, board, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—Resident Medical Officer for six months. Salary at rate of £120 per annum, with board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, with board, residence, and washing.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing. Also Registrar. Salary at rate of £25 per annum.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, &c.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY and EYE HOSPITAL, Hartshill.—Secretary and House Governor. Salary £500 per annum, non-resident.

TEIGNMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £70 per annum, with board, residence, and laundry.

THROAT HOSPITAL, Golden-square, W.—Honorary Anæsthetist.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, London, W.C.—Physician in Charge of the Skin Out-patients' Department.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Clinical Assistants and Casualty Officers.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Junior House Surgeon. Salary at rate of £30 per annum, with board, residence, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Surgical Officer. Salary £125 per annum, with board, lodging, and laundry.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Markinch, in the county of Fife; at Marlborough, in the county of Wilts; and at Ballaghaderrin, in the county of Roscommon.

Births, Marriages, and Deaths.

BIRTHS.

DIMSEY.—On Sept. 10th, at R.N. Hospital, Cape of Good Hope, the wife of Fleet-Surgeon E. R. Dimsey, D.S.O., R.N., of a son.

SELBY.—On Sept. 10th, at Hall-gate, Doncaster, the wife of Dr. E. W. Selby, of a son.

THOMPSON.—On Sept. 12th, at Sutherland House, Greencroft-gardens, Hampstead, N.W., the wife of Ralph Thompson, Ch.M., F.R.C.S., of a daughter.

MARRIAGES.

BEATTIE—FERGUSON.—On Sept. 8th, at All Saints, Gosforth, by the Rev. W. H. Ainger, M.A., Thomas Beattie, M.D., M.R.C.P., eldest son of John Beattie, J.P., Summerhill-grove, Newcastle-on-Tyne, to Edith Gwendolen, eldest daughter of James Ferguson, The Croft, Gosforth.

RAFFAN—WILLIAMS.—On Sept. 3rd, at the parish church, Aboyne, Aberdeenshire, George Raffan, M.D., F.R.C.S. E., to Evelyn, eldest daughter of James Williams, Esq., Dakota, Aboyne.

RUSTON-HARRISON—WEST.—On Sept. 8th, at Hoylake parish church, by the Rev. H. E. Elwell, M.A., brother-in-law of the bride, and the Rev. Francis Sanders, M.A., F.S.A., Vicar of Hoylake, George Herbert Ruston-Harrison, M.B., C.M. Edin., youngest son of the late David and Wilhelmina Ruston-Harrison of Stanwix, Carlisle, to Ella Maud, second daughter of the late Ernest Evill West of Waterloo, Liverpool, and of the late Blanche West of Bebington, Cheshire.

DEATHS.

BRIDGWATER.—On Sept. 8th, at Uckfield, Thomas Bridgwater, J.P., LL.D., M.B., aged 85 years.

BUTLER.—On Sept. 6th, Surgeon-Colonel E. R. Butler, I.M.S. (retired), of Hollington Towers, near St. Leonards-on-Sea, formerly of 147, Cromwell-road, South Kensington, in his 77th year.

CLARKSON.—On Sept. 2nd, at La Dent d'Oche, Lausanne, Switzerland, Lieutenant-Colonel J. W. Clarkson, I.M.S. (retired).

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A CHAMPION OF THE LOUSE.

Dr. William Butler, medical officer of health and school medical officer to the Willesden district council, recently sent a circular letter to the parents of the school children under his control pointing out in courteous and temperate terms the great frequency with which the heads of girls of school age are verminous, and suggesting that in the interests of the little girls themselves the mothers should send them to school with their hair cut short, a wise and hygienic suggestion, which will at once commend itself to any who have had the care of children living in poor London homes. There was, of course, no suggestion of compulsion in the letter, for it happens that the powers conferred upon local education authorities under the Children Act do not include that of cutting the hair of children suffering from pediculus capitis. It was somewhat surprising that this letter aroused considerable adverse criticism in the lay press and much nonsense was talked about it, quite the silliest and the unfairest remarks being made by Mr. G. K. Chesterton in the *Daily News* on Sept. 4th. Mr. Chesterton, as some people know, is on occasion a witty writer, and not infrequently a clever one, which makes it all the more unfortunate that he should use his influence to ridicule a proposal designed to guard school girls against a very loathsome and common infection. His diatribe was unfair, since it began "Some doctor or other in attendance on the compulsory schools of the poor took it into his head to tell all the little girls that they must have their hair cut off because long hair was unhealthy," a charge which, if he had read Dr. Butler's circular, he would have known to be unfounded. He then proceeded to get very cross, crying out in "contempt and amazement at the shattering absurdity of the whole situation," and saying, in one of his characteristic hyperboles, that the doctor, who "must be at least a little mad," might as well have ordered little girls' ears or little boys' legs to have been cut off as have deprived the former of their women's glory. He further insinuated that the tyranny of a scientific pedant was trying to stop mothers from bringing up their daughters to be beautiful, and summed up the matter by saying that those who acceded to such a proposal "are sacrificing what is natural and eternal to what is morbid and temporary." If lice and filth are natural and eternal, Mr. Chesterton is very welcome to stand as their champion. We should have rather held them to be the morbid and temporary accessories to a prolonged phase of human evolution from which sanitary progress is now rescuing civilised nations, but Mr. Chesterton has often announced his respect for mediævalism, and when he thus defends the sanctity of verminous parasites we must at least allow him the grace of consistency. Let us not dispute about his tastes, but the sequel to his outburst may be guessed. Dr. Butler wrote to the newspaper in which it had appeared a letter defending his action, and explaining to people, as ignorant of the facts of the case as Mr. Chesterton had proved himself, that head-lice are terribly common amongst London school children, that they are far more common in girls than in boys, and that cutting the hair has been found to be the only effective method of preventing and treating the condition of pediculosis. The letter was followed by others, two from mothers of school children gratefully supporting Dr. Butler's proposals and one from an ex-matron bearing even stronger witness to their beneficence, and concluding with the sensible words, "If in the next few years the school-girls can be taught to experience the comfort of cleanliness and to cultivate it personally, the next generation will not know this hidden scourge of torment which in slum children is so great as to of itself cause ill-health from want of rest." In answer to these plain statements of fact Mr. Chesterton poured forth a schoolboy's attack on the whole system of sanitary supervision by the State, begging the whole question at issue by completely ignoring the prevention of head-lice amongst our school children, and interpolating the following piece of rhetoric: "What I urge is, in short, that in this matter, as in all others, the poor are the protectors of the dignity and tradition of man. The doctors are a set of silly anarchists using brute wealth and force to destroy the great human institutions which they cannot understand." We may be silly anarchists, but we certainly cannot understand Mr. Chesterton's predilection for lice. However, he seems a little afraid of his own zeal, for his next remark is, "The end of my article was to show not that no dangers were averted by hair-cutting, not even that such hair-cutting was necessarily improper." Certainly nobody who can understand plain English could have derived any other meaning from Mr. Chesterton's article than that which he disclaims, but we have said quite sufficient to expose his spiteful ignorance of the case which has called forth his defence of the louse, and we need only add on the other side that there has been a perceptible improvement as regards vermin in the district under Dr. Butler's charge, owing to the response to his appeal by many parents who have voluntarily cut their little girls' hair, thereby safeguarding both the children themselves and their playmates against a disgusting disease without in any way hindering their future chances of feminine comeliness.

There is another possible explanation of Mr. Chesterton's attitude. Perhaps he does not really love lice, but has been writing at random on the vague report of a children's grievance. If that be the case, he has perhaps already seen—though he has not acknowledged—the mischief which a man may do who tries to influence public opinion upon an important matter of which he knows exactly nothing.

A STATE PROBLEM IN LEPROSY.

THE municipal and health authorities of Washington, D.C., have had under their care for almost a year a case of supposed leprosy which has given them an extraordinary measure of trouble and anxiety, owing to the fact that a very prominent dermatologist has declared that it is not a case of leprosy, wherefore the patient threatens to sue the authorities for unlawful detention. In August, 1908, a man of the name of Early, who had been working in a paper pulp mill in North Carolina, went to Washington suffering from some form of skin disease. He had been in the United States army and had served both in Cuba and in the Philippines. In the pulp mill where he had been employed there were numerous cases of skin poisoning from handling a caustic liquor made from black ash, and a prominent New York specialist in skin diseases is of the opinion that Early was suffering merely from skin poisoning caused by this caustic. In August Early went to Washington to apply for a pension, and while there he consulted a physician in regard to his condition. During the examination the patient casually remarked: "I suppose it isn't leprosy," or words to the same effect. The physician immediately had the patient confined and reported the case to the health officer. A health inspector was called in and an examination was made and cultures taken. The result was that Early was pronounced to be a leper, and was isolated in a tent. Efforts were then made to have him sent back to the State from which he came, but the authorities of that State refused to permit him to return. The Washington authorities then built for his use and that of his family a brick building with a solid partition separating the patient from his family, and set a guard over the house. As time went on Early began to assert that he was not a leper, and refused the treatment for leprosy that the health officers were giving him. In the meantime the Government granted him a pension of $70 per month by reason of his disability. The Salvation Army became interested in the case, and an attorney was employed who was about to institute *habeas corpus* proceedings for his release. But just at that time Dr. Edward Ehlers, the Danish expert on leprosy, arrived in New York, and was persuaded to make an examination of Early. The result of his examination was that he pronounced it a clear case of leprosy. After recovering from the shock of this announcement Early and his friends determined to have the advice of Dr. L. D. Bulkley of New York. Dr. Bulkley visited Early several times, took cultures, and unhesitatingly announced that the condition was not leprosy at all, but merely a case of dermatitis venenata, evidently due to handling a caustic. Dr. Bulkley then secured the consent of the New York Skin and Cancer Hospital to receive and treat the patient providing the Washington authorities would release him. In order to protect the city from a possible law-suit for damages, the Washington authorities demanded that further cultures be taken and an examination be made by three disinterested physicians, but Early refused further cultures. A long controversy ensued, which culminated on July 4th in Early being sent to New York in an empty baggage car with his family in another car on the same train. He had signed an agreement to permit the Washington health authorities to take cultures when desired and make further examinations. Before Early could be transported through the States of Pennsylvania and New Jersey the Public Health and Marine Hospital Service had to make changes in their regulations. Early arrived at the New York Skin and Cancer Hospital on July 4th, 1909, and after examination was admitted to the public ward among numerous other patients without hesitation. We have seen an autograph letter from Dr. Bulkley with the following statement of his patient's further progress:—

> Mr. Early came to the New York Skin and Cancer Hospital on July 4th, 1909, one year from the date of his imprisonment as a supposed leper, and has since been under my constant observation, at least once a week. For a month he has been living outside with his family and has gained in flesh and colour and is now in perfect health. All traces of his former inflammatory condition of skin have disappeared.
>
> On July 21st there were still some brownish stains, one on each lower thigh, just above the knee, toward the inside. From these there were two portions of skin excised, placed in absolute alcohol, and sent to Dr. Wm. H. Park, in charge of the Laboratory of the New York Board of Health. He reported in writing that there was not a suspicion of leprosy, and absolutely no leprous bacilli. The wounds healed promptly, with simple cotton dressing, with no antiseptic precautions, and the stains have now disappeared. In all I have taken nine portions of skin, from different localities, which have been examined by Dr. Wm. H. Welch of Baltimore and Dr. Wm. H. Park of New York, and no signs of leprosy found. Mr. Early has been examined by many dermatologists who all agree that he has not and could not have had leprosy.
>
> August 24th, 1909. L. DUNCAN BULKLEY.

In the face of this evidence we can only conclude that Early has been the victim of an extraordinary collision between the

interests of the individual and the apparent expediency of the State. We congratulate him on his release from a peculiarly vile form of durance, which seems to have cost the public a pretty penny even if no question of compensation arise.

"THE TYPHOID FLY."

WE have on many recent occasions called attention to the disease-spreading proclivities of the house fly and have suggested measures for its destruction. It is of interest to record that in Bulletin No. 78 of the Bureau of Entomology of the United States Department of Agriculture on the Economic Loss through Insects that Carry Disease, Dr. L. O. Howard makes the proposal that the name "typhoid fly" be substituted for the name "house fly" now in general use. The true connexion of this household pest with typhoid fever and the scientific evidence regarding its rôle as a carrier of that disease have not long been worked out. Celli, in 1888, fed flies with pure cultures of the typhoid bacillus and examined their contents and dejecta microscopically, and was able to prove by inoculating animals that the bacilli which passed through flies were virulent. The prevalence of typhoid fever in the concentration camps of the United States Army in the summer of 1898 led to the appointment of a board of medical officers to investigate the causes, and in 1900 they officially reported that "flies undoubtedly served as carriers of the infection." Dr. Howard considers that in city life the influence of flies in spreading this disease has been greatly under-estimated. It is not claimed that flies are the sole cause of the spread of typhoid fever, but under city conditions they probably rank next to water and milk. They also carry nearly all the intestinal diseases, and particularly by spreading summer dysentery they are responsible for the death of many children. Flies are also a source of danger to the community from the ease with which they disseminate the bacilli of tuberculosis (*Boston Medical and Surgical Journal*, Dec. 15th, 1904, p. 651). In Bulletin, No. 51, of the agricultural experiment station, Storrs, Conn., it was shown by an examination of a number of flies that one of these insects may harbour from 550 to 6,600,000 bacteria, the average for 414 flies being about one and a quarter million each. When it is considered that the organisms of enteric fever, Asiatic cholera, dysentery, epidemic diarrhœa, cholera morbus, tuberculosis, and probably other diseases are distributed by the common house-fly, it is obvious that it is the duty of the individual, as well as of the community, to wage a determined war upon these pestiferous insects. It is gross negligence to allow them to multiply unchecked, and Dr. Howard is making an attempt, by applying to musca domestica the offensive name "typhoid fly," to arouse the laity to a sense of the importance of taking measures to exterminate them, or, at least, to keep them away from food and human surroundings.

TO A TIMID LEECH.

A CORRESPONDENT writes:—"Some of your more middle-aged readers may perhaps have on their shelves a little green-covered book of occasional verses which were published by Henry S. Leigh just 40 years ago under the title 'Carols of Cockayne.' Others may not know the verses, and if so they will doubtless pardon me for rescuing from the limbo of neglected lays the following sprightly lines, the more especially as the art of leeching has fallen into such disrepute that the inclusion of an address to Hirudo Officinalis in a collection of *vers de société* has something of a historical medical interest. The verses are headed 'To a Timid Leech.'"

"'Nay, start not from the banquet, where the red wine foams for thee—
Though somewhat thick to perforate this epidermis be;
'Tis madness, when the bowl invites to linger at the brink;
So haste thee, haste thee, timid one. Drink, pretty creature, drink!

I tell thee, if these azure veins could boast the regal wine
Of Tudors or Plantagenets, the draught should still be thine!
Though round the goblet's beaded brim plebeian bubbles wink,
'Twill cheer and not inebriate. Drink, pretty creature, drink!

Perchance, reluctant being, I have placed thee wrong side up,
And the lips that I am chiding have been furthest from the cup.
I have waited long and vainly, and I cannot, cannot think
Thou would'st spurn the oft-repeated call. Drink, pretty creature, drink!

While I watched thy patient struggles, and imagined thou wert coy,
'Twas thy tail, and not thy features, that refused the proffered joy.
I will but turn thee tenderly—nay, never, never shrink.
Now, once again the banquet calls: Drink, pretty creature, drink'!"

PLEASANT RELAXATION.

WE have received copies of the first two volumes of a complete edition of Henry Seton Merriman's novels which are to be issued weekly in 14 volumes by Messrs. Smith, Elder, and Co., on thin paper at 2*s.* or 3*s.* each, according to the quality of binding selected. The first two volumes of this series are "The Slave of the Lamp" and "The Sowers." "The Slave of the Lamp" describes an attempt on the part of the Royalist party in France, with the assistance of the Roman Catholic Church, and especially of the Order of Jesus, to stir up the people to revolt against the Republic, with the idea that in the resulting turmoil the monarchical party will have a chance of regaining rule. A carefully thought out revolutionary movement was defeated by a somewhat phenomenal young journalist, and how he does it makes quite good reading, although some rather vigorous assaults on our credulity. "The Sowers" is a story of revolt against Russian bureaucracy and its attendant evils and abuses. The movement which is chronicled is known as the League of Charity, and its leaders, while objecting to the brutal methods of Nihilism as being absolutely premature, regard themselves as sowing the seed of rural prosperity so as to provide well-fed bodies for the reception of the better education which they will furnish later. "The Sowers" is a well-known novel and deserves its popularity, though here again the resemblance to life is not glaring. Neither book is of any special medical interest; but the works of a story-teller who knows how to use the English language, who can plan good situations and delineate probable characters with an incisive touch, may well be brought to the attention of our readers, many of whom may wish to enjoy the pleasant and valuable recreation afforded by reading a story, and may not feel certain what to select.

CORONER'S COURTESY.

UNDER the heading of "A Doctor's Grievance," a letter from a Torquay medical man has been inserted in a local newspaper. He states that he performed a post-mortem examination recently and was ordered to attend the inquest at 5.30 P.M. At 5.20 P.M. he received a very urgent message to see a patient, and he at once despatched a note to the coroner explaining his position and stating that he might be late. He attended the case, a very serious one, and arrived at the inquest at 6.5 P.M., and found that the coroner had held the inquest and accepted a verdict without his evidence. The coroner also refused to pay his fee. The writer, in alluding to the conditions of medical practice, says that he will never be paid for his services on four of the last five occasions in which he had been called out at night. In conclusion, the medical correspondent thinks "that doctors have a good deal to put up with." We agree with him.

IN AND OUT.

Mr. *Punch*, who has on many occasions shown in the most practical form his benevolent interest in hospitals, has drawn from one of them the following excellent story which figures this week amongst his *Charivaria*. "The house surgeon was surveying the newly arrived out-patient. One eye was bandaged and the other blackened, there were ugly scars on his forehead, and a piece was missing from his left ear. 'Had a fair knocking about?' remarked the house surgeon. The sufferer's face lighted up. 'Tother bloke's a *hin*-patient,' he said."

A HYGIENIC TABLE-FORK.

WE have received from Mr. G. Fox of Cardiff a sample of a new table-fork which he has designed for the purpose of facilitating its cleaning. Its chief feature of difference from ordinary forks is that the prongs instead of being round or square are of a flat oval in section, the edges being bevelled at an acute angle. There are also bevels on the body of the fork between the roots of the prongs. The consequence is that in wiping the fork with a cloth the angles between the prongs can be thoroughly cleansed without the use of a brush, an advantage that will be obvious to any housewife acquainted with the perfunctory methods of many domestic servants.

HOTELS AND THE FINANCE BILL.

WE have before us a circular issued by the manager of the Midland Railway hotels and refreshment rooms, in which he invites opposition to the clauses in the Finance Bill affecting hotels as distinct from public-houses, and points out the importance of good hotels at moderate prices in promoting the trade of the country. It certainly hardly needs demonstration that a large percentage of those who use hotels in this and in other countries do so, not in pursuit of pleasure, but because they are obliged to in order to carry on their business, and it is also to be recorded that great advance in comfort, cleanliness, and sanitary efficiency has been made in our hotels during recent years. We take no part in politics, but we may reasonably point out that comfort, cleanliness, and sanitary efficiency are not obtainable except by the expenditure of money on the part of those who provide them, and that if the prosperity which is earned by attention to the provision of comfort, cleanliness, and sanitation is taxed unduly it may lead to results unsatisfactory, not only to those compelled to be guests in hotels, but to the community.

Q.—According to our correspondent's account of the circumstances he is entitled to a fee. He attended the consultation at the mistress's request and should be paid for his services, but what view might be taken by a county court judge it is not possible for us to say.

Inquirer is correct in thinking that he should have been informed by the other medical men of their intention to examine the body of his late patient.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Pernet: Clinique (Skin).
TUESDAY.—4 P.M., Dr. C. O. Hawthorne: Clinique (Medical).
WEDNESDAY.—4 P.M., Mr. E. L. Evans: Clinique (Surgical).
THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical).
FRIDAY.—4 P.M., Mr. C. Worth: Clinique (Eye).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcology, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (22nd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (23rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (25th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 16th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 10	29·93	N.E.	0·02	71	61	48	51	52	Raining
,, 11	29·87	ESE	0·15	107	64	52	58	59	Cloudy
,, 12	29·99	ESE	...	115	66	53	57	60	Fine
,, 13	29·98	N.E.	0·13	67	58	55	54	55	Raining
,, 14	30·26	E.	0·07	88	58	52	51	54	Cloudy
,, 15	30·24	N E.	...	102	62	48	52	54	Cloudy
,, 16	30·06	S.E.	0·12	86	60	53	54	55	Overcast

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